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pfs:® plan

user's manual

for selected MS-DOS computers

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0-590-98303-2

about this manual

This manual explains how you can use the PFS:PLAN program to organize numerical data into row-and-column-oriented worksheets for planning purposes. It assumes that you are familiar with the general operation of your computer system. If you are not, read through your operations manual before beginning. It also assumes that you are working with 192KB or more of memory, an 80-column monochrome display, two double-sided diskette drives, and a parallel printer. The differences that result from having other equipment are discussed in Chapter 2, *Getting Started.*

The chapters contain detailed, step-by-step instructions for using PLAN's features and examples to illustrate these features. Sample worksheets are stored on the PLAN program diskette for use with several examples. Anything that you are to type when following the examples is printed in **bold** type. The best way to learn PLAN is to read through the chapters, following along with the examples on your own computer.

The appendices include information about error messages and about customizing your PLAN program diskette to work with special equipment. A quick reference guide summarizes all the functions and special keys used with PLAN.

If you have not already done so, please fill out and return the User Group Enrollment Card. Enrollment in this group entitles you to receive product update information, new product announcements, and tips on using the PFS Family of Software.

0-590-98303-2

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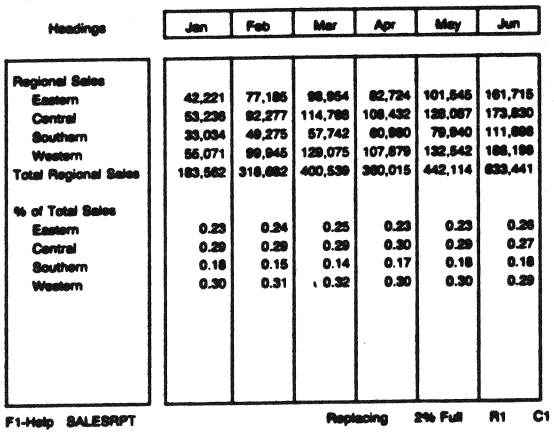
1: what is pfs:plan?

PFS:PLAN is a computer program that you can use for all types of numerical planning, tracking, analyzing, and reporting. With PLAN, you organize your numerical data into rows and columns, creating a report called a worksheet, like this sales report:



Headings	Jan	Feb	Mar	Apr	May	Jun
Regional Sales						
Eastern	42,221	77,186	98,864	82,724	101,545	161,715
Central	53,236	92,277	114,768	109,432	128,087	173,830
Southern	33,034	49,275	57,742	60,960	79,940	111,696
Western	55,071	99,945	129,075	107,879	132,542	186,199
Total Regional Sales	183,562	318,682	400,539	360,015	442,114	633,441
% of Total Sales						
Eastern	0.23	0.24	0.25	0.23	0.23	0.26
Central	0.29	0.29	0.29	0.30	0.29	0.27
Southern	0.18	0.15	0.14	0.17	0.18	0.18
Western	0.30	0.31	0.32	0.30	0.30	0.29

F1-Help SALESRPT Replacing 2% Full R1 C1

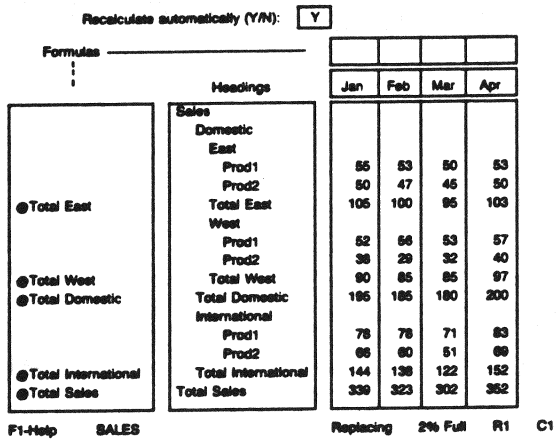
Since PLAN is integrated with the other programs in the PFS Family of Software, you can create and print or plot presentation-quality graphs from the data in your PLAN worksheets using PFS:GRAPH. You can also print a copy of your worksheet in a document that you produce with PFS:WRITE. In addition, PLAN can read data directly from a file created with PFS:FILE and place that data in the correct locations in your worksheet. Finally, with PFS:ACCESS, you can send your worksheet to another computer via a service such as MCI Mail or Western Union EasyLink.

PLAN is powerful enough to serve most planning needs, yet it is easy to learn and use. PLAN uses plain English, making it easy to type your worksheet and to understand it after you've typed it. Shortcuts save typing time. The Quick Entry key, for example, allows you to enter certain headings automatically, such as the column headings in the sales report.

You could also, if you wanted, automatically enter the headings in the sales report like this:

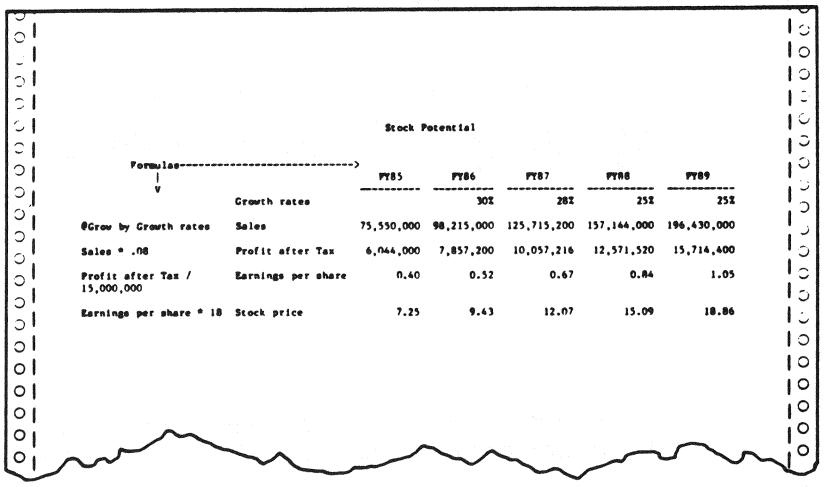
Headings	January	Febuary	March	April	May	June
Regional Sales						
Eastern	42,221	77,185	98,954	82,724	101,545	161,715
Central	53,236	92,277	114,788	108,432	128,087	173,830
Southern	33,034	49,275	57,742	60,960	79,940	111,696
Western	55,071	99,945	129,075	107,879	132,542	186,198
Total Regional Sales	183,562	318,682	400,539	360,015	442,114	633,441
% of Total Sales						
Eastern	0.23	0.24	0.25	0.23	0.23	0.26
Central	0.29	0.29	0.29	0.30	0.29	0.27
Southern	0.18	0.15	0.14	0.17	0.18	0.18

You use your worksheet headings to create easy-to-write and easy-to-read formulas, and PLAN calculates values in the worksheet according to these formulas. For example, look at this worksheet:



Every calculation in this worksheet is done as a result of one word, @Total. The word @Total is a *keyword*, and keywords are another feature of PLAN designed to make your job easier. When you use a keyword in a formula region, PLAN knows exactly what to do without your writing a long (or possibly complex) formula. Several other keywords are available, such as @Avg, @Min, @Max, @Cum, @Prev, and @Grow. PLAN also offers several special financial keywords — @NPV (Net Present Value), @FV (Future Value), and @Payment.

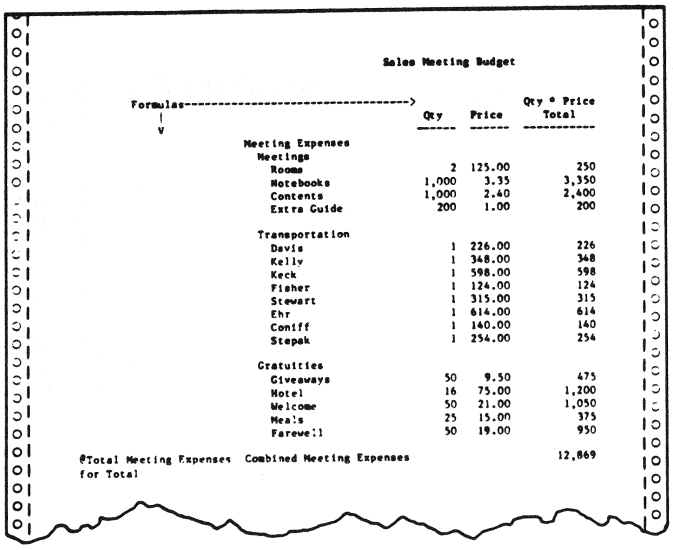
You can also create formulas yourself using English words and standard math operators (+,−, *, /). For example, look at the formulas in this printed copy of a worksheet that analyzes the potential of a company's stock:



Stock Potential

Formulas------------------------------->		FY85	FY86	FY87	FY88	FY89
	Growth rates		30%	28%	25%	25%
@Grow by Growth rates	Sales	75,550,000	98,215,000	125,715,200	157,144,000	196,430,000
Sales * .08	Profit after Tax	6,044,000	7,857,200	10,057,216	12,571,520	15,714,400
Profit after Tax / 15,000,000	Earnings per share	0.40	0.52	0.67	0.84	1.05
Earnings per share * 18	Stock price	7.25	9.43	12.07	15.09	18.86

Each formula in this worksheet performs its calculation on the entire row. Many times a row or column calculation is perfectly adequate, and the formula for such a calculation is usually quite simple. But for those times when a row or column calculation is not adequate, PLAN allows you to perform calculations on specified values in a row or column, or on just one value. For example, look at this printed copy of a budget for a sales meeting:

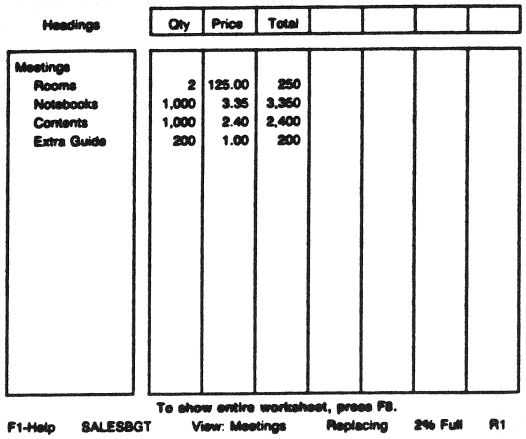


Sales Meeting Budget

Formulas---------->	Qty	Price	Qty * Price Total
Meeting Expenses			
Meetings			
Rooms	2	125.00	250
Notebooks	1,000	3.35	3,350
Contents	1,000	2.40	2,400
Extra Guide	200	1.00	200
Transportation			
Davis	1	226.00	226
Kelly	1	348.00	348
Keck	1	598.00	598
Fisher	1	124.00	124
Stewart	1	315.00	315
Ehr	1	614.00	614
Coniff	1	140.00	140
Stepak	1	254.00	254
Gratuities			
Giveaways	50	9.50	475
Hotel	16	75.00	1,200
Welcome	50	21.00	1,050
Meals	25	15.00	375
Farewell	50	19.00	950
@Total Meeting Expenses for Total	Combined Meeting Expenses		12,869

The formula for the final worksheet row (@Total Meeting Expenses for Total) includes only the Total column by simply adding the words "for Total" at the end of the formula.

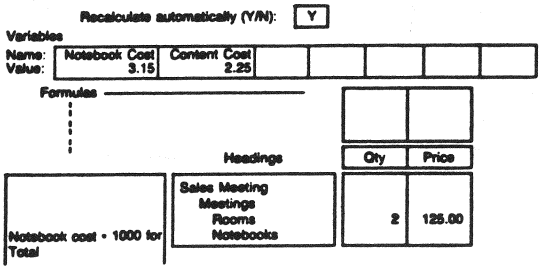
Once you create a worksheet, PLAN lets you define and work with a selected portion of the worksheet, called a view. You might create a view like this one of the sales meeting budget, for example:



With views you can break a large worksheet into smaller, more manageable pieces that are easier to work with. At any time, however, you can return to the entire worksheet.

Other PLAN features include two special functions, Variables and Target, which allow you to easily play "What if...?" with your worksheets. With Target you can set a target value and then find the value that you need to get that target value. For example, you can set a sales goal for the coming year, and then use Target to see what your monthly sales have to be in order to achieve this goal.

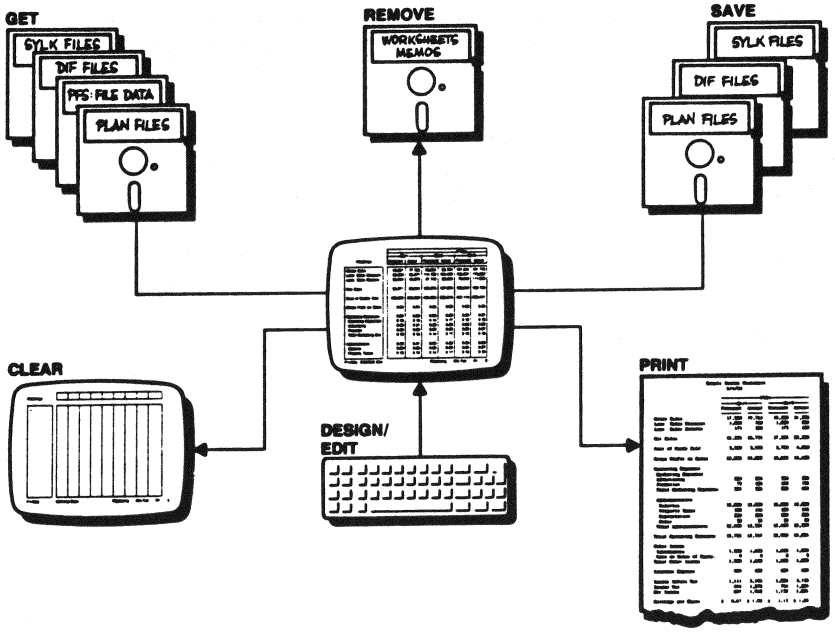
With Variables you can change key values in order to compare different results. For example, suppose you create these variables for the sales meeting budget:



By using the Variable names in formulas (e.g., Notebook Cost * 1000), you can see how different costs for the notebooks and the contents affect the budget by simply changing the value for one or more of the variables. Or, you can use Target to work backwards; that is, if you know how much you want to spend for notebooks and contents, you can then find out how much you can spend per unit based on that amount.

How PLAN Works

The PLAN program has seven main functions. The following diagram shows how these functions work together:



You use the Design/Edit function to create a new worksheet or to edit an already existing worksheet. When you are using the Design/Edit function, you can use any of PLAN's special functions that are controlled by the function keys.

The next three Main Menu functions allow you to manage the disk storage of worksheet files. The Get function lets you retrieve a worksheet from a disk for editing or printing. It also lets you consolidate two worksheets and get data from files created using PFS:FILE, from DIF files, and from SYLK files. The Save function lets you save worksheets on a disk and save worksheets as DIF or SYLK files. The Remove function permanently deletes any unwanted worksheet or other file from a disk. When using any of these functions, you can list all the files on your disk, in a specific directory, or in a related group of files.

With the Print function, you can print a worksheet on your printer, with or without its formulas and variables, and you can print a worksheet to a disk file to be printed at a later time in a PFS:WRITE document. You can also print a copy of a view.

You use the Clear function to clear the working copy of the worksheet currently stored there when you want to begin a new worksheet. You can also clear only the values from the worksheet in the working copy when you want to use its headings and formulas for a new worksheet.

The last function on the menu, Exit, lets you leave PLAN to perform DOS commands or to start another program.

2: getting started

This chapter explains how to get started using PFS:PLAN. *It is very important that you follow the instructions in this chapter for making a backup copy of the PLAN program diskette before using the PLAN program for the first time.*

What You Need to Use PLAN

To use PFS:PLAN, you need the following equipment:

- one of the MS-DOS* computer systems listed on the back of the PFS:PLAN package, with at least 128KB of memory and one double-sided diskette drive (see the table of different memory sizes and approximate corresponding worksheet sizes in the note below)
- a black-and-white or color monitor, properly connected to your computer
- a parallel or serial printer, properly connected to your computer
- the Disk Operating System (DOS) for your computer
- the PFS:PLAN package, including
  — the program diskette
  — the instructional manual
  — several sample worksheets, stored on the program diskette
- several blank, formatted diskettes or a fixed disk for worksheet storage

Note: Worksheet size depends on many factors (e.g., number of values, number and length of formulas, headings and column groups, etc.). Approximations of sizes you can expect for various amounts of memory are:

	128KB	192KB	256KB	320KB or more
Number of Rows	48	96	176	255
Number of Columns	20	44	64	70

*MS-DOS® is a registered trademark of Microsoft Corporation.

Making a Backup Copy of the Program Diskette

Before using the PLAN program diskette for the first time or before installing the program on a hard disk, you should make a backup copy of the program diskette. You can copy the diskette only once, so follow the instructions below very carefully.

1. Load DOS from drive A (or from your fixed disk).

2. When DOS asks you for the date, type the date and press the Enter (↵) key. When DOS asks for the time, type the time and press Enter.

3. When the DOS prompt A> appears, place the PLAN diskette in drive A. If drive A is single-sided, use drive B. (If you use drive B, make it the default drive by typing B: and pressing the Enter key. The DOS prompt changes to B>.)

4. Type **BACKUP** and press the Enter key.

5. An instruction screen appears next. The instructions will vary depending on whether you have one or two double-sided drives. Have ready a blank diskette that has been formatted in a double-sided drive.

   If you have two double-sided drives: Place the blank diskette in drive B and press the Enter key. You will see the in-use lights on the disk drives come on alternately a few times; then a message will inform you that the backup procedure is complete. (If the message "Insert disk with COMMAND.COM" appears, you must reload DOS.)

   If you have only one double-sided drive: Insert the PLAN diskette when you are asked for it and the blank diskette when you are asked for it. Switch the two diskettes as many time as requested, until a message appears informing you that the backup procedure is complete. (If the message "Insert disk with COMMAND.COM" appears, you must reload DOS.)

6. Remove the diskettes from the drive and place write-protect tabs on both. Label the blank diskette with a felt-tipped pen, and store it in a safe place. Use the original PLAN diskette for your work. You are now ready to begin using PLAN.

Using PFS:PLAN with Different Equipment

The PFS:PLAN program comes set up to work with the MS-DOS computers listed on the back of the PFS:PLAN package, a monochrome or color monitor, at least one double-sided diskette drive, and a parallel printer.

This manual assumes that your computer system includes 192KB of memory, an 80-column monochrome monitor, two double-sided diskette drives, and a parallel printer. The following sections explain what to do or to expect if your equipment is different from what the program or the manual assumes.

Using the PFS SETUP Program

If you have a serial printer, a fixed disk, or a black-and-white monitor connected to a Color/Graphics Monitor Adapter, you need to use the PFS SETUP program to modify the PLAN program diskette to work properly with your computer system. Appendix B explains how to use the SETUP program.

Systems with One Double-sided Diskette Drive

PFS:PLAN works with one diskette drive, as long as the drive is double-sided. If your computer has 384KB of memory or more, you can remove the PLAN program diskette after starting PLAN and immediately insert the diskette on which you store your worksheets. If your computer has less than 384KB of memory, you need to keep the PLAN diskette in the drive, except when using the Get, Save, Remove or Print functions. PLAN tells you when to insert the diskette on which you store worksheets (called a worksheet diskette), and when to replace the program diskette.

Systems with One Single-sided and One Double-sided Diskette Drive

If you have such a system, you must use the double-sided drive for the PFS:PLAN program diskette. If the double-sided drive is not drive A, make the double-sided drive the default drive by typing the drive name and a colon (for example, B:) after the DOS prompt A> and pressing the Enter key. You can then use the single-sided drive for your worksheet diskettes.

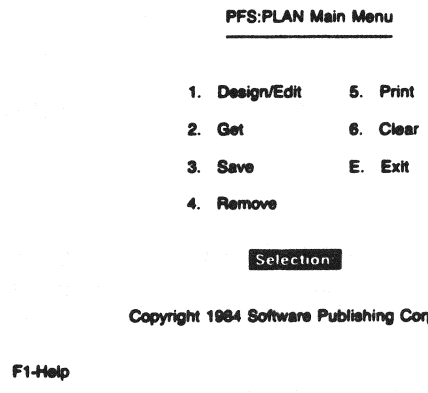
Starting PFS:PLAN

The procedure for starting the PFS:PLAN program depends on whether or not your computer is already switched on, and whether or not you have used the PFS SETUP program to install PLAN on the fixed disk.

- If your computer is switched off, insert the DOS diskette in drive A and switch the computer on. Enter the date and time when requested to do so, and press the Enter key each time. When the DOS prompt appears, replace the DOS diskette with the PFS:PLAN diskette. Type **PLAN** and press the Enter key.
- If the computer is switched on, exit from whatever program you are using. When the DOS prompt appears, insert the PLAN diskette in the default drive and type **PLAN**. Then press the Enter key.
- If you have installed PLAN on the fixed disk, make sure the default directory is the directory where you installed PLAN, type **PLAN** and press the Enter key.

The PFS:PLAN Main Menu

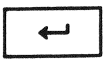
The PFS:PLAN Main Menu lists the seven main functions provided by PFS:PLAN:



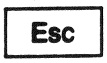
This menu appears when you first load PFS:PLAN, and whenever you press the Escape key. The cursor is always positioned in Selection. To select a function from this menu, type the number or letter that corresponds to the function you want to use, and press Enter.

Special Keys Used by PFS:PLAN

PFS:PLAN uses a number of special keys in its operation. You need to know about two important keys before you begin using PLAN:



Enter. On any menu, Enter tells PLAN to begin or continue the selected function. When you are typing or editing a worksheet, Enter moves the cursor to the next line of the same column.



Escape. Cancels the current operation and returns to the Main Menu, saving your most current work in the computer's temporary memory as it does so.

PLAN uses the cursor movement keys on the numeric keypad in special ways to allow you to move easily about your worksheet. These keys and others that allow you to correct mistakes or make changes in your worksheet are discussed in Chapter 5, *Editing a Worksheet*.

PLAN uses your computer's function keys for many special functions. A function-key template is included in the pocket with your PLAN program diskette to use on your keyboard as a reminder of the special uses PLAN makes of these keys.

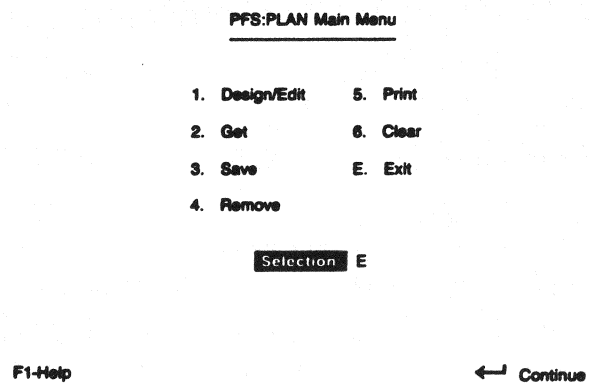
Press the function key to begin the function, and then press the same key again to stop the function. If the function key template shows two functions, the one on the top is selected by using the Shift key with the function key. The function keys are explained throughout the manual, and all of the keys are summarized in the final appendix, *A Quick Guide to PFS:PLAN*.

When You Need Help

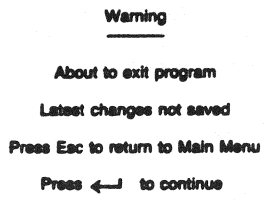
Help screens are available whenever the message F1-Help appears in the bottom left-hand corner of the screen. When you press F1, PLAN displays a brief explanation of the function you are currently using. If a second Help screen is indicated in the lower-right corner of the screen, press Enter to see this screen or press F1 again to return to what you were doing without viewing the second screen.

Exiting from PFS:PLAN

When you want to stop using PFS:PLAN in order to perform DOS commands or to run another program, press Esc to return to PLAN's Main Menu. Type **E** after Selection, so the screen looks like this:



Press Enter to continue. If you have not saved the current worksheet since making any changes, PFS:PLAN displays a warning:



Save the worksheet (see Chapter 4) and select Exit again, or press Enter to exit without saving the working copy.

As you exit from PFS:PLAN, the screen clears. If the message "Insert disk with COMMAND.COM" appears, you must reload DOS. When the DOS prompt appears on the screen, you can insert the DOS diskette to use DOS commands, or you can start using another program.

Summary

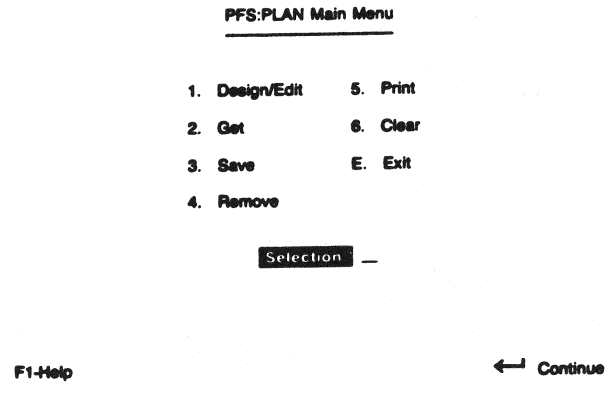
- Be sure to make a backup copy of the PLAN program diskette before using PLAN the first time.
- Store the backup copy of PLAN in a safe place and work with the original.
- To start PFS:PLAN, first load DOS. Then insert the PLAN program diskette, type PLAN, and press Enter.
- Press F1 to display one of PLAN's Help screens.

3: designing a simple worksheet

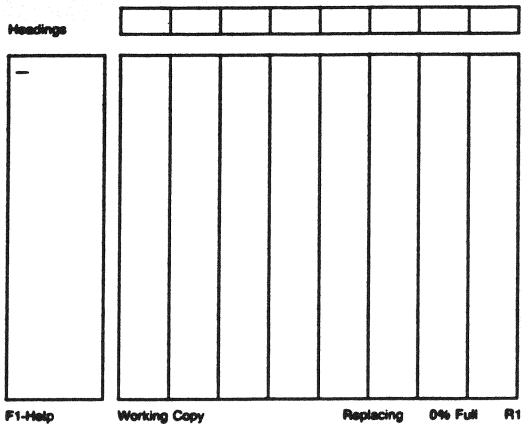
You use the Design/Edit function to design a new worksheet and to revise an existing worksheet. This chapter explains how to use the Design/Edit function to design a simple worksheet. It talks about the different parts of the worksheet, how to enter row and column headings, how to enter numerical values, how to create and enter formulas, and a few keyword calculations.

Selecting the Design/Edit Function

To begin designing a worksheet, load the PLAN program into your computer system according to the directions in Chapter 2, *Getting Started.* The Main Menu appears on the screen with the cursor positioned after the word Selection, ready for you to type in your menu selection:



Let's use the Design/Edit function to create a six-month income statement for a fictitious mail order company called VideoMail. First, type 1 in Selection. Then press the Enter key, and PLAN displays a blank worksheet:



The Parts of the Worksheet

Before you start your worksheet, take a look at the screen. Every worksheet is divided into several regions, as described in the following sections:

Headings Regions. The headings regions appear at the top and left edge of your screen. You enter words and phrases in these regions to identify the rows and columns of values in your worksheet. The row headings region extends from the word Headings in the upper-left corner down to the bottom of the screen. The column headings region extends to the right of Headings. These two regions are always visible, but in a large worksheet only some of the headings are visible at one time.

Values Region. The values region is in the center of the screen, divided by vertical lines. You enter numbers in this region; calculated values also appear here. Some portion of the values region is always visible, but only a small portion of the values in a large worksheet is visible at one time.

Cursor. The cursor is the small blinking underline in the first position of the row headings region. It appears here whenever you first start PLAN and select Design/Edit. If you have a color monitor, the cursor and the characters at the cursor location are highlighted in either red or bright white (depending on the worksheet location). The cursor always marks the location where any character you type appears. You can move to the different parts of a large worksheet quickly and easily using a variety of cursor movement keys. (Cursor movement is explained in Chapter 5 and summarized in *A Quick Guide to PFS:PLAN.*)

Message Region. The message region is at the bottom of the screen and *always* tells you:

- when Help is available
- the name of your worksheet
  (if you are creating a new worksheet, it says Working Copy)
- if you have pressed Ins to insert characters
  (Inserting appears instead of Replacing)
- how much of the available computer memory has been used
  (0% Full)
- the row and column number of the cursor's position
  (R1 — only one letter appears if the cursor is in a headings region)

The message region is also used to display other types of messages, when appropriate, such as requests for more information or error messages.

The Working Copy

The working copy is a temporary storage area in your computer. When you are creating a new worksheet, PLAN stores it in this area. When you retrieve a worksheet from a disk for editing, PLAN makes a copy of it and places that copy in this area. Any changes made to this retrieved worksheet are made only in the working copy. The version stored on the disk remains the same. When you finish creating or editing your worksheet, you must use the Save function (Chapter 4) to store the new or edited worksheet on a disk if you want to keep it. Any data stored only in the working copy is permanently lost when you exit PLAN or turn off your computer.

Entering Row Headings

The row headings region is 9 spaces wide when the blank worksheet first appears on the screen. As you type your headings, this region automatically expands to the size of your widest heading, or up to a maximum of 25 characters. Use any characters you choose in your headings. Press Enter to move to the beginning of the next row.

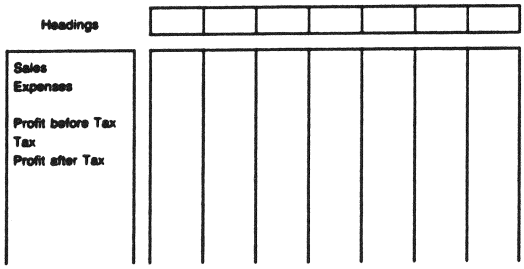
For example, let's enter row headings in our income statement. The blank PLAN worksheet should be on your screen, and the cursor ready for your first heading. Type **Sales**.

If you make a mistake while typing, use the Backspace key to back up and retype the characters in error.

Now press Enter, and the cursor moves to the beginning of the second row. Type **Expenses** as your second heading, and then press Enter two more times and type the following headings, each on its own line:

Profit before Tax
Tax
Profit after Tax

You can see your headings region expand as you type the longer headings. Your row headings should look like this:



Entering Column Headings

When you first select Design/Edit, each column in the blank worksheet is 7 spaces wide. As you type your column headings, each column expands to accommodate the size of its heading, up to a maximum of 25 characters. As with row headings, you can use any characters you choose in these headings.

For example, let's enter column headings for the income statement. Move the cursor to the first column heading by first pressing the Home key to move to the upper-left corner of the values region and then pressing the up-arrow key. Suppose that the fiscal year for the company begins in July; type **Jul** as your first column heading. Then press the Tab key to move to the second column. Notice that PLAN centers your heading when you move to the next column.

Now type **Aug** in the second column. You could continue moving from column to column and typing the rest of the months of the year; however, PLAN gives you an easier way to do this.

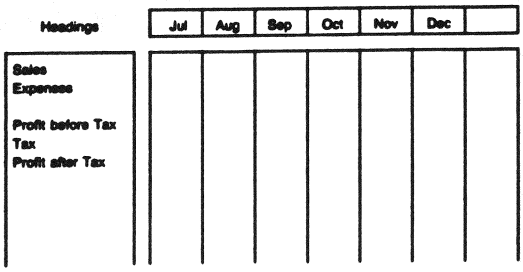
Entering Headings with Quick Entry

Enter a series of related headings automatically by using F2, PLAN's Quick Entry key. Move the cursor into the headings region and press F2 before or after you type the first heading in the series. Then press Tab (for column headings) or the down-arrow key (for row headings) once for each heading you want to enter automatically. For instance,

if you type	when you press Tab, PLAN enters
Jan	Feb, Mar, Apr, May...
June	July, August, September...
OCTOBER	NOVEMBER, DECEMBER, JANUARY...
FEB	MAR, APR, MAY, JUN...
Oct83	Nov83, Dec83, Jan84...
Week 1	Week 2, Week 3, Week 4...
QTR 1	QTR 2, QTR 3, QTR 4...
FY82	FY83, FY84, FY85...
1984	1985, 1986, 1987...
1	2, 3, 4, 5, 6, 7...

Stop the Quick Entry function by pressing F2 again or changing the direction of the cursor.

Let's use the Quick Entry key to complete the column headings in the income statement. First, press F2. (If you press the wrong function key by mistake, just press it again to turn it off.) Then press Tab. If you began your column headings in the last section, Sep appears in the next column. Press Tab again, and Oct appears. Continue pressing Tab until Dec appears, and then press Home. Your column headings should look like this:



You may want to use the Quick Entry key with headings other than those in the previous list. The following rules explain how PLAN recognizes and processes headings automatically:

- it recognizes the full names or three-letter abbreviations of months and enters the next month in the series, following the capitalization you use.
- it exactly duplicates text (other than the names of months), including capitalization.
- it recognizes whole numbers and increases them by one.

Entering Values in the Worksheet

You are now ready to type values in your worksheet. Use either the numbers at the top of the keyboard or the numeric keypad at the right of the keyboard (press the Num Lock key or hold down either Shift key when using the numeric keypad). As you type your numbers, use either Tab to move the cursor along the row or Enter to move down the column.

For example, let's enter some values in the income statement. Type the following values in the Sales row:

	Jul	Aug	Sep	Oct	Nov	Dec
Sales	13993	13907	16999	55231	77547	70003

Notice that PLAN displays your numbers with commas after you move the cursor away from them. When you type an entry in the values region, PLAN allows you to type anything. When you move the cursor away from the entry, PLAN modifies it, if necessary, to conform to the Global Format default instruction (whole numbers with commas). (Chapter 8 explains how to format your worksheet to display dollar signs, percent signs, or decimal places.)

No matter what PLAN displays, it stores an entry according to the following rules:

- it stores up to 14 digits (including decimal places) for each number entered.
- it accepts the digits 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, a decimal point (.), and a leading minus sign (–).
- it ignores a leading plus sign (+), multiple minus signs, and multiple decimal points. (It stores the first decimal point typed.)
- it does not accept a number that contains a mathematical operator (+, –, /, *); e.g., 123+45. (See *Using PLAN's Calculator* in Chapter 5.)
- it treats an entry containing any alphabetic characters as text and does not perform calculations on it.

Repeating Values with Quick Entry

If you want to enter the same value several times consecutively, use the Quick Entry key (F2). In the values region, the Quick Entry function duplicates a value. It does not manipulate the value in any way.

Press F2 before or after you type the value to be duplicated. Then move to the next row or column in any direction, using the appropriate cursor movement key. The number appears each time you press the cursor movement key until you press F2 again or change directions.

For example, let's enter the first three Expenses values in the income statement automatically. Press Home and then the down-arrow key to move to the beginning of the Expenses row. Now press F2 and type **12626**. Press Tab, and the number 12,626 appears in the August (Aug) column. Press Tab again, and 12,626 also appears in the September (Sep) column.

Press F2 again, and then Tab. Now finish the Expenses row with the following list of values:

Oct	55828
Nov	62311
Dec	77063

Your worksheet should look like this:

Headings	Jul	Aug	Sep	Oct	Nov	Dec	
Sales	13,993	13,907	16,999	55,231	77,547	70,003	
Expenses	12,626	12,626	12,626	55,828	62,311	77063	
Profit before Tax							
Tax							
Profit after Tax							

Creating and Entering Formulas

Formulas tell PLAN how to calculate the values in a row or a column. You type formulas in two special regions (one for columns and one for rows) that appear on the screen when you press F9, PLAN's Formula key:

Recalculate automatically (Y/N): Y

Formulas

Headings	Jul	Aug	Sep	Oct	Nov	Dec
Sales	13,993	13,907	16,999	55,231	77,547	70,003
Expenses	12,626	12,626	12,626	55,828	62,311	77063
Profit before Tax						
Tax						
Profit after Tax						

F1-Help Working Copy Replacing 1% Full R2 C6

You can use PLAN's *keywords* or create your own formulas in these regions.

Using Keywords

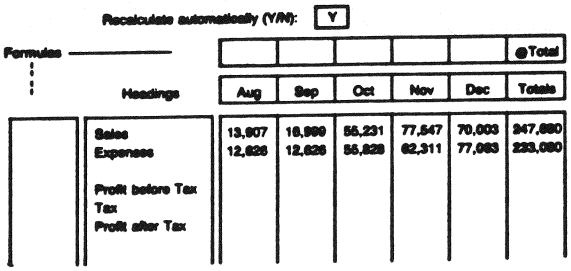
A *keyword* is a special word that instructs PLAN to perform a specific, frequently-used calculation. A keyword looks like a common word or abbreviation preceded by an at sign (@). The following chart lists PLAN's keywords and tells you what they can do:

Keyword	What It Can Do
@Total	Calculate a variety of totals.
@Avg	Calculate a variety of averages.
@Min	Find smallest value in worksheet, or in different portions of worksheet.
@Max	Find largest value in worksheet, or in different portions of worksheet.
@Cum	Calculate a cumulative total.
@Grow	Increase values by specified amounts.
@Prev	Look back to find previous values needed for current calculation.
@Start	Provide start values for @Cum, @Prev, @Grow, @NPV, and @FV.
@NPV	Calculate net present value.
@FV	Calculate future value.
@Payment	Calculate amount of loan payment.

Most of the above keywords are explained in Chapter 6, *All about Groups, Keywords and Formulas*. The financial keywords (@NPV, @FV, and @Payment) are explained in Chapter 7.

Let's try a simple use of a keyword right now. The keyword @Total, used alone, can total all the rows or columns in a worksheet. Let's use @Total to total the columns in the sample income statement.

First, press F9 to display the formulas regions. Then, press Tab once and the up-arrow key twice to move the cursor into the column headings region of the first empty column of the worksheet. Type **Totals** as the heading for the column. Then, press the up-arrow key again to move the cursor into the formulas region. Type **@Total** as the formula and press the down-arrow key. PLAN automatically calculates the total Sales and total Expenses for the months July through December:



Writing a Simple Formula

You can write your own formulas by combining row and column headings, keywords, numbers, variables (see Chapter 7), and the following mathematical operators:

+	add
–	subtract
*	multiply
/	divide
( )	perform this part of calculation first. (Parentheses can be nested five deep.)

Row and column formulas are written in the same way and entered in the same way. When writing a formula, follow these guidelines:

- type row and column headings exactly as they appear in the headings region (except for use of capitalization)
- space between the operators and the headings if you desire (spaces are optional)
- enclose headings containing mathematical operators in quotation marks
- enclose headings consisting of only numbers in quotation marks.

Here are some simple formulas that you might create using PLAN:

```
Total Income - Total Expenses
Number of Units * Price per Unit
.48 * (Sales - Expenses)
"Acctg/Legal" / Total Expenses
```

Let's type some formulas in the income statement. First, press Home to move to the upper-left corner of the values region. Then press a Shift key and, while holding it down, press Tab twice to move the cursor into the row formulas region. Next use Enter to move the cursor to the formula row to the left of the Profit before Tax heading. Type

Sales - Expenses

and press Enter to move the cursor next to the Tax heading. Notice how PLAN fills in the values in the Profit before Tax row according to the formula you typed. Now type

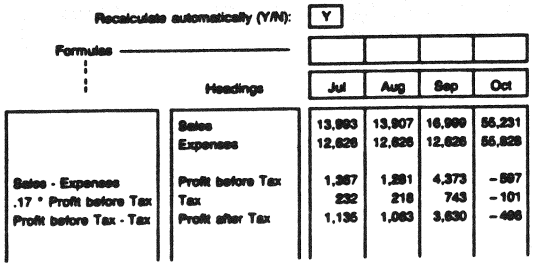
.17 * Profit before Tax

as the formula for this heading. Press Enter again to move next to Profit after Tax, and PLAN fills in the values for the row whose formula you just typed. Now type the formula

Profit before Tax - Tax

for Profit after Tax and press Enter one more time.

Your now completed worksheet should look like this:



Since you have completed your formulas, press F9 to have the formulas regions disappear from the screen.

Writing More Complex Formulas

PLAN allows you to write formulas that are more complex than those discussed here. You can, for instance, create several formulas for one row or column, each referring to a different portion of the row or column. You can also create a formula that refers to just one value in a row or column. Writing these types of formulas is explained in Chapter 6, *All about Groups, Keywords and Formulas.*

Entering Long or Multiple Formulas

As you type a formula, the formulas region expands to a maximum of 25 characters. Formulas are not limited to 25 characters, however. If you have a long formula (or several different formulas) in a row or column, PLAN automatically wraps the formula to the beginning of the next line. The worksheet splits, and the formulas region keeps growing until you complete your formula or reach the maximum of 10 lines (or 250 characters). When you press F9 again to display the worksheet without the formulas, the breaks in the worksheet disappear.

Recalculating Automatically or Manually

When you press F9 to display the formulas regions, an item named Recalculate Automatically also appears above the worksheet. The default for this item is Y for yes, which means that whenever you enter a value in a worksheet that affects a calculation elsewhere, PLAN performs the calculation immediately.

If you change Recalculate Automatically to N for no, you must press F7, the Recalculate key, each time you want to recalculate your worksheet. To change the default for Recalculate Automatically, move the cursor to this item by first using Home to move to the top of the values region, and then pressing the up-arrow key. Type N over the Y. Return the cursor to the values region by pressing Home again.

In small to medium-sized worksheets, automatic recalculations are instantaneous. If you are making numerous changes to a large worksheet, however, it could be somewhat time consuming for PLAN to recalculate after every value change. In such cases, we recommend that you change the entry for Recalculate Automatically to N, make all desired changes to your worksheet, and then press F7 to have PLAN recalculate your worksheet only once.

We also recommend that you set Recalculate Automatically to N if your computer has only 128K. PLAN needs to access the PLAN program diskette often when recalculating in only 128K, and the program will work more efficiently if you only recalculate occasionally using F7.

Entering Comments in the Worksheet

PLAN allows you to enter comments (up to 230 characters) in your worksheet without affecting its general format. When an entry in the values region contains a letter of the alphabet, PLAN considers this entry to be text, even if it contains numbers. When typing text, you can cross column boundaries rather than expanding column widths. Consequently, you should be careful how you position text in your worksheet, or you could overwrite values that you do not want to lose.

For example, let's enter a comment in the income statement. Press Enter and then press Tab two times to move the cursor into the August column of the second empty row at the bottom of the worksheet. Type

Worksheet completed

followed by today's date to see how PLAN handles your text.

Leaving the Design/Edit Function

You can leave the Design/Edit function at any time while entering or editing a worksheet by pressing Esc. Your worksheet remains in the working copy, unless you use the Clear, Get, or Exit functions or turn off your computer. To permanently save your worksheet, you must use the Save function to store your worksheet on a disk. To return to the worksheet, simply select Design/Edit again from the Main Menu.

Summary

- Use the Design/Edit function to design a new worksheet or edit an old one.
- Headings identify the rows and columns of values in a worksheet.
- You can enter headings and values automatically with PLAN's Quick Entry key (F2).
- Formulas tell PLAN how to calculate values in a row or column.
- PLAN provides keywords, such as @Total, for certain commonly-used calculations.
- PLAN can recalculate your worksheet automatically or only when you press the Recalculate key (F7).
- You can enter text in a worksheet without affecting the width of your columns.

4: saving and retrieving worksheets

You use the Get, Save, and Remove functions to manage the worksheets and other files that you store on a disk. This chapter explains how to use these functions, and it also explains how to consolidate two worksheets and how to display a list of files in a directory.

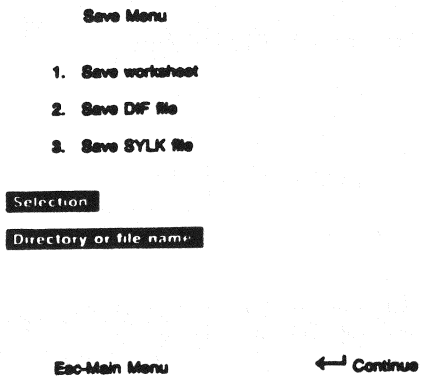
Saving a Worksheet

Use the Save function to save the working copy on a disk. Until you use this function, any worksheet that you create only exists in the computer's temporary memory — if you turn off the computer or exit the program, you lose the worksheet. You can save a worksheet as a PLAN file, or as a DIF or SYLK file for use with other software programs.

We recommend that you save frequently while working on a worksheet (every half hour is a good rule) — especially if you are creating a large worksheet. You can too easily lose information because of a power outage or some inadvertent error. We also suggest that you keep a duplicate diskette copy of any large worksheet in case the original becomes damaged or worn out.

Selecting the Save Function

To begin the Save function, return to the Main Menu (press Esc, if necessary), type 3 in Selection, and press Enter. The Save Menu appears on the screen:



To use an option from this menu, type its number in Selection, type the file name (including the directory name, if you do not want to save to the default directory) in the Directory or File Name item, and press Enter.

Naming PLAN Worksheet Files

You can store PFS:PLAN worksheets on both diskettes and fixed disks. To the computer, PLAN worksheets look just like other DOS files. They can be managed with DOS, and can co-exist on disks with other files.

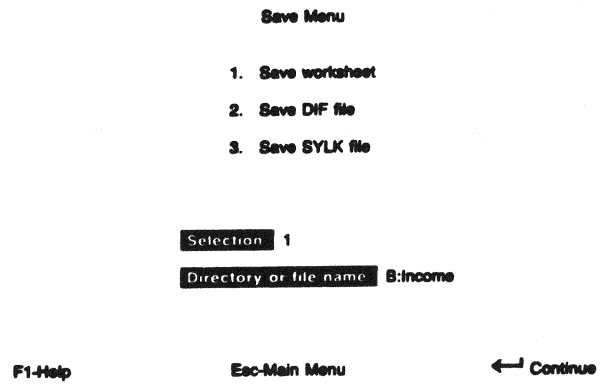
A simple worksheet name typically has two components: the name of the drive and the name of the worksheet. The drive name always ends with a colon (:). For example, B:BUDGET refers to the worksheet named BUDGET stored on whatever diskette is in drive B. If you use a file name on its own, without a preceding drive name (for example, BUDGET) PLAN assumes the file is in the default drive (drive A unless you have changed it).

The name given to a worksheet must be different from the other file names on the disk. It can be up to eight characters long, including letters and numbers. A file name can also have an optional extension of a period and up to three characters (for example, Budget.ws — to identify your worksheet files). If a file name has an extension, you must always use the extension with the name when referring to that file.

If you are using a version of DOS that recognizes sub-directories, you can use path names when naming your worksheet files (for example, C:\budgets\personal). For a complete description of the rules for using DOS commands and naming DOS files, see your DOS manual.

Saving a PLAN Worksheet

Let's save the income statement completed in Chapter 3 on a blank formatted diskette. First, make sure the diskette is in drive B. Then, return to the Main Menu (press Esc, if necessary), type **3** in Selection, and press Enter to display the Save Menu. Now type **1** to select Save Worksheet. Press Tab and type **B:Income** after Directory or File Name, as shown below:



Now press Enter, and PLAN saves the worksheet and returns to the Main Menu.

Should you have a worksheet stored under the same name, PLAN displays a warning screen. Press Esc to return to the Main Menu, and save the working copy under a different name.

Notice that the worksheet remains in the working copy even after you save it. You can continue editing (select Design/Edit) or choose another function from the Main Menu.

Saving DIF and SYLK Files

Occasionally, you may want to save a PLAN worksheet as a DIF or SYLK file in order to use the worksheet with a program outside the PFS Family of Software.

To save a worksheet as a DIF or SYLK file, first select the Save function from the Main Menu. When the Save Menu appears, select either Save DIF File or Save SYLK File. Type a file name (including a directory name, if needed) in Directory or File Name, and press Enter. PLAN saves DIF files in column order, and saves values, but not formulas in SYLK files.

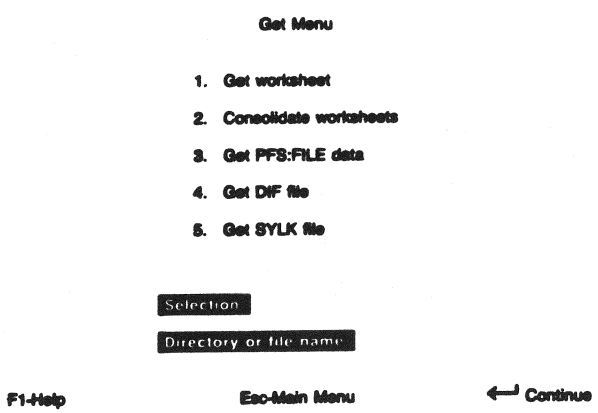
Retrieving a Worksheet

Use the Get function to retrieve a previously-stored worksheet from a disk. Also use the Get function to retrieve data into a worksheet from a PFS file (see Chapter 9) or from a DIF or SYLK file.

When you retrieve a worksheet, PLAN copies the worksheet into the working copy. Any editing changes made to this copy affect the working copy only — the worksheet on the disk remains the same. (To make your editing changes permanent, use the Save function to store the modified worksheet.)

Selecting the Get Function

To begin the Get function, return to the Main Menu (press Esc, if necessary), type 2 in Selection and press Enter. The Get Menu appears on the screen:



To use an option from this menu, type its number in Selection, type the file name (including the directory name, if needed) in Directory or File Name, and press Enter.

Listing Files in a Directory

Often you might want to list the files on a disk or in a directory. Perhaps you do not remember the exact spelling of the file you want to get, for example.

To display a directory listing on the screen, type an option number from the Get Menu (or Save Menu) in the Selection item. Then, type only the directory name in Directory or File Name. Some directory names are:

B:	to show all files stored on the diskette in drive B
C:\myfiles\	to show all files stored in the directory named MYFILES on the disk named C:

Press Enter, and PLAN displays the list of files in that directory, prompting you for the name of the worksheet you want to get at the same time. If there are more files in the list than can be shown on one screen, use the Page Down key (PgDn) to see the rest of the list.

To continue with the selected Get option, type a file name in the Name of Worksheet to Get item and press Enter again. If you do not want to continue for some reason, press Esc to return to the Main Menu.

For example, let's list the files on the PLAN diskette in drive A. First type **2** in the Selection item on the Main Menu and press Enter. When the Get Menu appears, type **1** in Selection, press Tab to move to Directory or File Name, and type **A:**, if necessary. Your screen should look like this:

```
                    Get Menu

          1. Get worksheet
          2. Consolidate worksheets
          3. Get PFS:FILE data
          4. Get DIF file
          5. Get SYLK file

          Selection 1
          Directory or file name A:

F1-Help              Esc-Main Menu              ← Continue
```

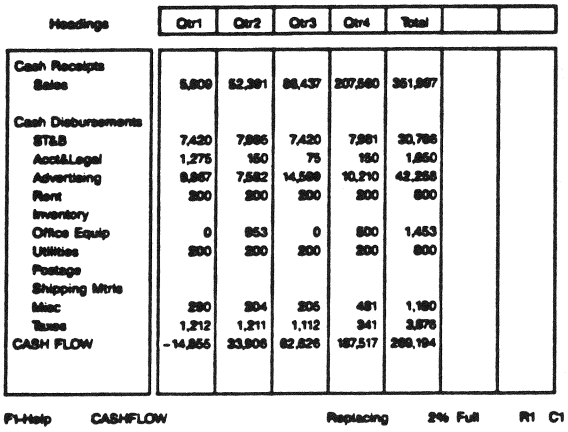
Press Enter, and the following screen appears:

```
                Directory listing of A:

PLAN.COM        PLANSAVE.HLP
PLANAJR.EXE     PLANTGT.HLP
PLANMOV.HLP     PLANKWD.HLP
PLANDE.HLP      PLANEND.HLP
PLANMM.HLP      SETUP.EXE
PLANVIE.HLP     PRINTERS.LC
PLANPR.HLP      BACKUP.EXE
PLANFOR.HLP     CASHFLOW
PLANPFS.HLP     PRODCOST
PLANCALK.HLP    SALES85
PLANIR.HLP      EXPENSES
PLANRET.HLP     G&A
PLANFMT.HLP     EXPENSES.PFS
PLANGET.HLP
PLANQUIK.HLP
                Name of worksheet to get A:

                Esc-Main Menu              ← Continue
```

Retrieving a PLAN Worksheet

Let's retrieve one of several sample worksheets stored on your PLAN program diskette. If you followed the example in the last section, the directory listing of the PLAN diskette is on the screen; type **Cashflow** after the A: in the Name of Worksheet to Get item and press Enter.

PLAN retrieves the Cashflow worksheet and places it in the working copy. If you had not saved the income statement in the working copy, PLAN would have warned you before overwriting it, giving you the opportunity to return to the Main Menu, save the worksheet, and select Get again. Your screen should now look like this:



Headings	Qtr1	Qtr2	Qtr3	Qtr4	Total		
Cash Receipts							
Sales	5,809	52,391	88,437	207,560	351,897		
Cash Disbursements							
ST&B	7,420	7,985	7,420	7,981	30,786		
Acct&Legal	1,275	150	75	150	1,650		
Advertising	9,957	7,582	14,589	10,210	42,258		
Rent	200	200	200	200	800		
Inventory							
Office Equip	0	953	0	500	1,453		
Utilities	200	200	200	200	800		
Postage							
Shipping Mtrls							
Misc	290	304	205	481	1,180		
Taxes	1,212	1,211	1,112	341	3,876		
CASH FLOW	-14,856	33,906	62,626	167,517	269,194		

F1-Help CASHFLOW Replacing 2% Full R1 C1

You can begin editing or press Esc to return to the Main Menu and select another function.

Retrieving DIF and SYLK Files

To retrieve a DIF or SYLK file, first select the Get function from the Main Menu. When the Get Menu appears select either the Get DIF File or the Get SYLK File option. Type a file name in the Directory or File Name item, and press Enter.

When getting data from either of these types of files, PLAN retrieves only headings and values; it ignores formulas and any comments in the values portion of the worksheet. PLAN also requires that the files be stored in the following manner:

- The first 3 rows of the worksheet must be blank or contain only column headings. Insert rows in the DIF or SYLK file, if necessary.
- The first column of the worksheet must contain the row headings.
- DIF files must be saved by columns.

Consolidating Worksheets

Use the Consolidate Worksheets option on the Get Menu to combine one worksheet with another. When consolidating worksheets, PLAN combines values from a worksheet on disk with those on the worksheet in the working copy according to the following rules:

- It adds values wherever row and column headings match exactly.
- It ignores rows and columns without matching headings.
- If it finds more than one row or column with the same heading, it looks for a group name.
- If it cannot find any matching headings, PLAN does nothing.

To consolidate worksheets, start with a worksheet in the working copy. Then, select the Get function. Type 2 in the Selection item of the Get Menu, move to Directory or File Name, and type the name of the worksheet you want to combine with the working copy (including the directory name, if necessary). Place the diskette containing this file in drive B, and press Enter. Before consolidating worksheets, PLAN displays a warning message. Press Enter again to have PLAN complete the consolidation and return to the Main Menu.

The Cashflow worksheet retrieved in the last section was created by consolidating two worksheets, each containing expenses for a different category. Another worksheet, containing product costs, has not yet been consolidated into the Cashflow worksheet. It looks like this:

Headings	Qtr1	Qtr2	Qtr3	Qtr4	Total		
Product Costs							
ST&B	6,741	6,176	6,741	10,444	30,102		
Inventory	14,317	15,004	15,004	150,187	194,512		
Shipping Mtrls	860	234	238	1,050	2,412		
Postage	5,800	5,485	8,751	21,339	41,175		
Rent	400	400	400	400	1,800		
Utilities	1,435	1,055	1,025	1,666	5,181		
Misc	175	150	123	302	750		
Total Product Costs	29,568	28,504	32,282	185,388	275,732		

Let's use Consolidate Worksheets to combine this worksheet with the Cashflow worksheet. First, press Esc to return to the Main Menu, and type 2 in Selection. Press Enter and also type 2 in Selection on the Get Menu. Press Tab and type **Prodcost** after the A: in Directory or File Name. Press Enter again, and the following message appears:

Warning

About to consolidate worksheets

Press Esc to return to Main Menu

Press ↵ to continue

Press Enter one more time, and PLAN consolidates the two worksheets. The Cashflow worksheet should now look like this:

Headings	Qtr1	Qtr2	Qtr3	Qtr4	Total		
Cash Receipts							
Sales	5,809	52,391	88,437	207,560	351,897		
Cash Disbursements							
ST&B	14,161	14,161	14,161	18,405	60,888		
Acct&Legal	1,275	150	75	150	1,650		
Advertising	9,867	7,582	14,599	10,210	42,258		
Rent	600	600	600	600	2,400		
Inventory	14,317	15,004	15,004	150,187	194,512		
Office Equip	0	953	0	500	1,453		
Utilities	1,835	1,255	1,225	1,966	6,981		
Postage	5,600	5,485	5,751	21,339	41,175		
Shipping Mtrls	690	234	238	1,050	2,412		
Misc	485	354	328	783	1,930		
Taxes	1,212	1,211	1,112	341	3,876		
CASH FLOW	-44,413	5,402	30,344	2,129	-6,538		

F1-Help CASHFLOW Replacing 2% Full R1 C1

Notice that the Inventory, Postage, and Shipping Mtrls rows were filled in, and the values in the ST&B, Rent, Utilities and Misc rows were increased.

Removing a File

Use the Remove function to permanently erase a worksheet file or any other file. Be very sure of your decision when you remove a file, because there is no recovery once the function is complete.

To remove a file, type 4 in the Selection item of the Main Menu and press Enter. A screen appears listing the files in the last directory that you used. Type the file name in the Name of File to Remove item and press Enter. PLAN displays a warning screen to give you a chance to change your mind before it removes the file. Press Enter again to remove the file, or press Esc to return to the Main Menu.

To list the files in a different directory, type only a directory name in the Name of File to Remove item and press Enter. The specified directory listing appears on the screen.

> **WARNING: Once you remove a worksheet or file, there is no way to recover it. Make sure you really want to delete it permanently from the diskette before using this function.**

Summary

- Use the Save function to save the working copy on a disk as a PLAN worksheet. Also use Save to save a worksheet as a DIF or a SYLK file.
- Save your worksheets frequently and keep duplicate copies of important or lengthy worksheets.
- Use the Get function to retrieve a copy of a worksheet into the working copy. Also use Get to consolidate worksheets, retrieve a worksheet stored as a DIF or SYLK file, and get data from a file created with PFS:FILE (see Chapter 9).
- Use either the Get, Save, or Remove function to list the files in a directory.
- Use the Remove function to permanently erase a worksheet or other file from a disk.

5: editing a worksheet

As you create a worksheet, you will probably make some typing errors, or you might simply want to change something after entering it. You might also want to make extensive changes to an existing worksheet. This chapter explains different ways of editing a worksheet. It also explains how to clear the working copy.

Moving around the Worksheet

Use the following cursor movement keys to move around your worksheet:

↑	Moves the cursor up one line.
↓	Moves the cursor down one line.
→	Moves the cursor to the right one space.
←	Moves the cursor to the left one space.
Home	Moves to the upper left corner of the values region.
PgUp	Displays the previous screenful of data.
PgDn	Displays the next screenful of data.
↵	(called Enter) Moves the cursor to the next row of the same column. (Enter does not move the cursor across the boundaries of the worksheet; i.e., from items like Recalculate Automatically to the main part of the worksheet.)

The End key is used in a special way. Press End and then one of the four arrow keys to move the cursor in the following ways:

End ↑	Moves to the top of the same column.
End ↓	Moves to the bottom of the same column.
End →	Moves to the right end of the same row.
End ←	Moves to the left end of the same row.

The following keys let you move easily between the columns of the worksheet:

Tab	Moves to the beginning of the next column.
Shift Tab	Moves to the beginning of the previous column.

(Use Ctrl → and Ctrl ← in place of Tab and Shift-Tab, if you find them more convenient.)

Simple Editing

You can make simple corrections to a worksheet in one of the following ways:

Backspace. To change the last few characters typed, use the Backspace key to back up, erasing characters as the cursor moves. Then retype the characters.

Replace. To replace one or more characters, move the cursor to the first character you want to replace and type the replacement. If the replacement has fewer characters than the original entry, delete the leftover characters. If it has more characters, insert the characters that won't fit.

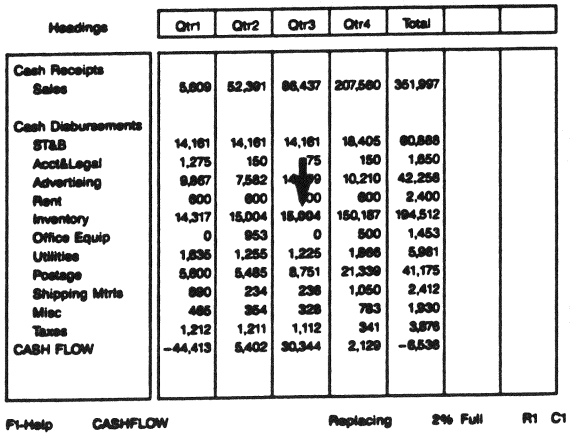
Delete. To delete one or more characters, move the cursor to the first character that you want to delete and press the Delete (Del) key. Press Del once for each character that you want to remove. Any characters following deleted characters are moved to the left to fill up the empty space.

Insert. To insert characters into something typed previously, move the cursor to the location where you want to make the insertion, press the Insert key (Ins), and type. Press Ins again to stop inserting and return to replace mode.

Erase Entry. To erase a complete entry (heading, formula, value, etc.) and start over, move the cursor to the selected entry and press F3, the Erase Entry key.

Erase Adjacent Entries. To erase several adjacent entries from a row or column, first use F3 to erase one entry. Then press F2, Quick Entry. Next, use up arrow, down arrow, Tab or Shift-Tab to move along a row or column erasing entries. Finally, press F2 again or change directions to stop Quick Entry.

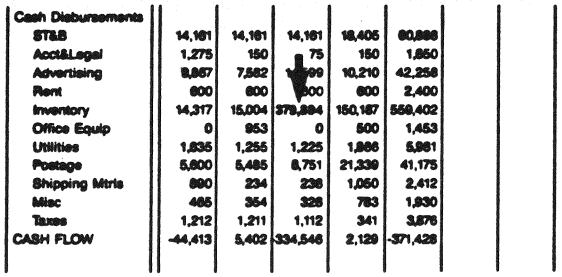
Let's try some simple editing with the Cashflow worksheet that you retrieved in Chapter 4. First, find the third quarter figure for Inventory under Cash Disbursements, as shown here:



Headings	Qtr1	Qtr2	Qtr3	Qtr4	Total		
Cash Receipts							
Sales	5,809	52,391	86,437	207,560	351,997		
Cash Disbursements							
ST&B	14,161	14,161	14,161	18,405	60,888		
Acct&Legal	1,275	150	75	150	1,650		
Advertising	9,867	7,582	14,729	10,210	42,258		
Rent	600	600	600	600	2,400		
Inventory	14,317	15,004	15,894	150,187	194,512		
Office Equip	0	953	0	500	1,453		
Utilities	1,835	1,255	1,225	1,866	5,981		
Postage	5,800	5,485	8,751	21,339	41,175		
Shipping Mtrls	890	234	236	1,050	2,412		
Misc	495	354	328	783	1,930		
Taxes	1,212	1,211	1,112	341	3,876		
CASH FLOW	-44,413	5,402	30,344	2,129	-6,538		

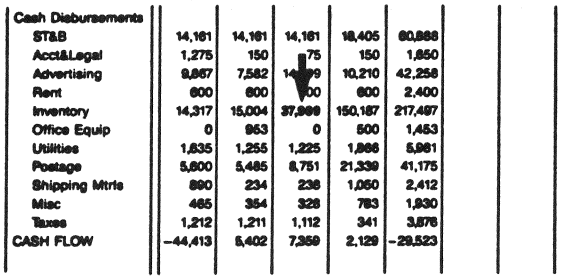
F1-Help CASHFLOW Replacing 2% Full R1 C1

This figure is incorrect, so let's correct it. Move the cursor to the first digit (1), type **37989**, and press Tab. If you followed these instructions exactly, you typed over the comma in the original number and now your number is 379,894 instead of 37,989:



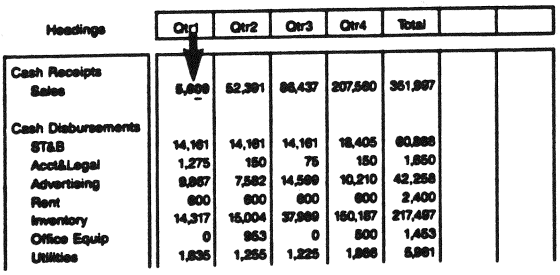
Cash Disbursements					
ST&B	14,161	14,161	14,161	18,405	60,888
Acct&Legal	1,275	150	75	150	1,650
Advertising	9,867	7,582	14,999	10,210	42,258
Rent	600	600	600	600	2,400
Inventory	14,317	15,004	379,894	150,187	559,402
Office Equip	0	953	0	500	1,453
Utilities	1,835	1,255	1,225	1,866	5,981
Postage	5,600	5,485	8,751	21,339	41,175
Shipping Mtrls	890	234	238	1,050	2,412
Misc	485	354	328	783	1,930
Taxes	1,212	1,211	1,112	341	3,876
CASH FLOW	-44,413	5,402	-334,546	2,129	-371,428

To delete the unwanted 4 on the end of 379,894, move the cursor to the 4 and press Del once. Press Tab again, and notice that the column width shrinks one space to the left as you shorten the widest entry in the column. Your number now looks like this:



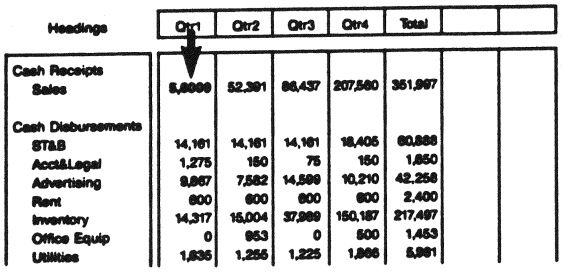
Cash Disbursements					
ST&B	14,161	14,161	14,161	18,405	60,888
Acct&Legal	1,275	150	75	150	1,650
Advertising	9,867	7,582	14,999	10,210	42,258
Rent	600	600	600	600	2,400
Inventory	14,317	15,004	37,989	150,187	217,497
Office Equip	0	953	0	500	1,453
Utilities	1,835	1,255	1,225	1,866	5,981
Postage	5,600	5,485	8,751	21,339	41,175
Shipping Mtrls	890	234	238	1,050	2,412
Misc	485	354	328	783	1,930
Taxes	1,212	1,211	1,112	341	3,876
CASH FLOW	-44,413	5,402	7,359	2,129	-29,523

Next, look at the first quarter Sales figure. This figure should be 56,009 not 5,609. Move the cursor to the 0 in 5,609, like this:



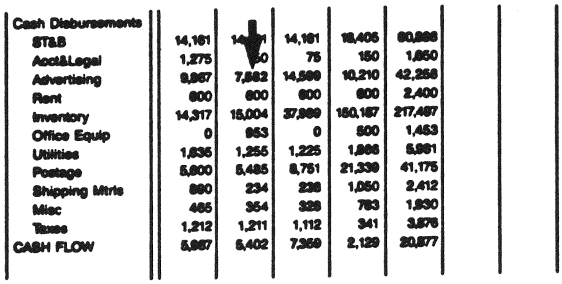
Headings	Qtr1	Qtr2	Qtr3	Qtr4	Total
Cash Receipts					
Sales	5,6699	52,391	86,437	207,560	351,997
Cash Disbursements					
ST&B	14,161	14,161	14,161	18,405	60,888
Acct&Legal	1,275	150	75	150	1,650
Advertising	9,867	7,582	14,599	10,210	42,258
Rent	600	600	600	600	2,400
Inventory	14,317	15,004	37,999	150,167	217,487
Office Equip	0	953	0	500	1,453
Utilities	1,835	1,255	1,225	1,866	5,981

Now press Ins. Notice that the cursor changes from a blinking underscore to a blinking rectangle, and that the message "Inserting" appears in the message region. Type **0**, and the characters 5,6 move to the left to make room for the 0:



Headings	Qtr1	Qtr2	Qtr3	Qtr4	Total
Cash Receipts					
Sales	5,6699	52,391	86,437	207,560	351,997
Cash Disbursements					
ST&B	14,161	14,161	14,161	18,405	60,888
Acct&Legal	1,275	150	75	150	1,650
Advertising	9,867	7,582	14,599	10,210	42,258
Rent	600	600	600	600	2,400
Inventory	14,317	15,004	37,999	150,167	217,487
Office Equip	0	953	0	500	1,453
Utilities	1,835	1,255	1,225	1,866	5,981

Press Tab, and PLAN places the comma in the correct position in the number and stores it in the working copy. Now press Ins again to turn off insert mode. Let's make one more correction. Suppose the second quarter Advertising figure is also incorrect:



Cash Disbursements					
ST&B	14,161	14,161	14,161	18,405	60,888
Acct&Legal	1,275	150	75	150	1,650
Advertising	9,867	7,582	14,599	10,210	42,258
Rent	600	600	600	600	2,400
Inventory	14,317	15,004	37,999	150,167	217,487
Office Equip	0	953	0	500	1,453
Utilities	1,835	1,255	1,225	1,866	5,981
Postage	5,600	5,485	8,751	21,339	41,175
Shipping Mtrls	890	234	238	1,050	2,412
Misc	465	354	328	783	1,930
Taxes	1,212	1,211	1,112	341	3,876
CASH FLOW	5,987	5,402	7,359	2,129	20,877

Let's correct it by first moving the cursor to that figure and then pressing F3. The cell is now empty and ready for you to enter another number. Type **6469** and press Tab to complete your editing.

Manipulating Rows and Columns

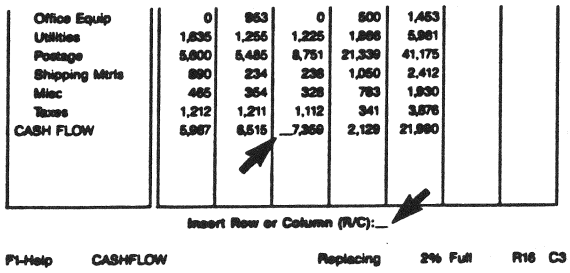
At times you may want to do extensive editing of a worksheet. This might include inserting new rows and columns, deleting existing rows and columns, moving a row or column to a different location in the worksheet, or copying a row or column into other locations. When making numerous changes, set the Recalculate Automatically item (press F9, the Formula key, to see this item) to N to prevent PLAN from recalculating the worksheet every time you make a change. Then, use the Recalculate key (F7) when you finish editing.

Inserting Rows and Columns

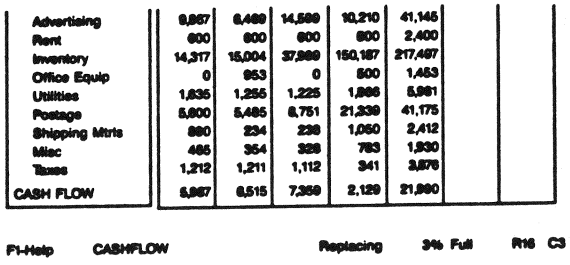
To insert a new row in a worksheet, move the cursor into the row directly below where you want to make the insertion. Press F6, the Insert Row/Col key, and PLAN instructs you, in the message region, to indicate whether you want to insert a row or a column by typing R or C. Type R, and the row containing the cursor moves down to make room for the new row.

To insert a new column, move the cursor into the column directly to the right of where you want to make the insertion. Press F6, and when PLAN instructs you to type R or C, type C. The column containing the cursor moves to the right to make room for the new column.

For example, let's insert a blank row in the Cashflow worksheet to separate the CASH FLOW figures from the Cash Disbursements. First, move the cursor anywhere in the CASH FLOW row and press F6. Insert Row or Column (R/C) appears in the message region, with the cursor positioned after it. Another blinking cursor marks the location of the cursor in the worksheet.



Type **R**, and a new row appears between the rows CASH FLOW and Taxes:



Advertising	9,867	6,469	14,589	10,210	41,145		
Rent	600	600	600	600	2,400		
Inventory	14,317	15,004	37,989	150,167	217,497		
Office Equip	0	953	0	500	1,453		
Utilities	1,835	1,255	1,225	1,866	5,981		
Postage	5,800	5,485	6,751	21,339	41,175		
Shipping Mtrls	880	234	238	1,060	2,412		
Misc	486	354	328	783	1,930		
Taxes	1,212	1,211	1,112	341	3,876		
CASH FLOW	5,867	6,515	7,359	2,129	21,990		

F1-Help CASHFLOW Replacing 3% Full R16 C3

Removing Rows and Columns

To remove a row or column, first move the cursor into the row or column. Press Shift-F6, the Remove Row/Col key, and PLAN instructs you to type R or C. Type R, and PLAN removes the row in which the cursor is positioned. Type C, and PLAN removes the column in which the cursor is positioned.

For example, let's remove the Total column from the Cashflow worksheet. Move the cursor into this column and press Shift-F6. When Remove Row or Column appears, type **C**, and the Total column disappears.

Restoring Rows and Columns

When you use Shift-F6 to remove a row or column, PLAN stores the row or column in your computer's memory until you either use Shift-F6 again, leave the program, or turn off your machine. Thus, you can restore the most-recently removed row or column to the worksheet using Shift-F5, the Restore Row/Col key. This key is useful for preventing the loss of a row or column accidentally removed, and also for moving and copying rows and columns to different locations in the worksheet.

Moving Rows and Columns

To move a row or column to a new location in the worksheet, first use Shift-F6 to remove the row or column. Then, as with inserting a row or column, move the cursor to the location where you want to restore it, and press Shift-F5 (Restore Row/Col). If you are moving a row, the other rows in the worksheet move down to make room for the previously-removed row. If you are moving a column, the other columns in the worksheet move to the right to make room.

For example, let's restore the Total column that you removed from the Cashflow worksheet in the previous section. Suppose you really want to see your Totals in the first column. Move the cursor to the Qtr1 column and press Shift-F5. Your worksheet should now look like this:

Headings	Total	Qtr1	Qtr2	Qtr3	Qtr4		
Cash Receipts							
Sales	402,387	58,009	52,391	86,437	207,550		
Cash Disbursements							
ST&B	60,866	14,161	14,161	14,161	18,405		
Acct&Legal	1,850	1,275	150	75	150		
Advertising	41,145	9,867	8,469	14,599	10,210		
Rent	2,400	600	600	600	600		
Inventory	217,497	14,317	15,004	37,989	150,187		
Office Equip	1,453	0	953	0	500		
Utilities	5,981	1,635	1,255	1,225	1,866		
Postage	41,175	5,800	5,485	8,751	21,339		
Shipping Mtrls	2,412	890	234	238	1,050		
Misc	1,930	465	354	328	783		
Taxes	3,876	1,212	1,211	1,112	341		
CASH FLOW	21,990	5,987	6,515	7,359	2,129		

F1-Help CASHFLOW Replacing 3% Full R16 C1

Copying Rows and Columns

To copy a row or column to another location, first place the cursor anywhere in the row or column to be copied and press F5, the Copy Row/Col key. Then move the cursor to that position where you want the copy to appear. Press Shift-F5, Restore Row/Col. If you are copying a row, the other rows in the worksheet move down to make room for the copy. If you are copying a column, the other columns in the worksheet move to the right to make room for the copy.

Using PLAN's Calculator

With PLAN's four-function calculator, you can add to, subtract from, multiply or divide a value previously typed, or currently being typed, into the worksheet. This feature allows you to enter several values into the same location of the worksheet, one after another, without having to manipulate them ahead of time. Or, you can adjust a value previously typed into the worksheet, as necessary, without needing any other tools. Use the same mathematical operators with the Calculator that you use to create formulas:

+	add
-	subtract
*	multiply
/	divide
( )	perform this part of calculation first (can be nested five deep)

To use the Calculator, first move the cursor to the location where you want to perform a calculation. Then press F4, the Calculator key, and the message

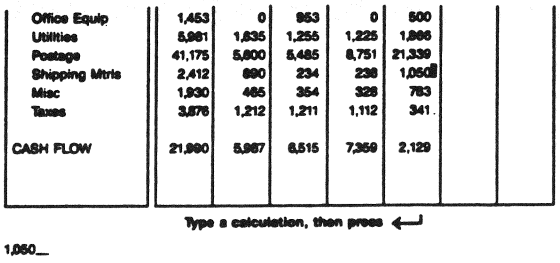
Type a calculation, then press ↵

appears in the message region. The cursor is positioned at the beginning of the next line, ready for you to type a number. The original position of the cursor in the worksheet is marked by a large flashing rectangle.

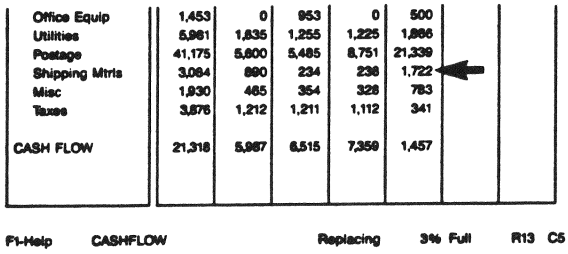
If the cursor location in the worksheet contains a value when you press F4, this value appears on the line after the above message, and the cursor appears after the value, ready for you to type an operator.

Continue alternately typing numbers and mathematical operators until you want PLAN to complete the calculation. Then press Enter, and PLAN places the answer to the calculation at the original position of the cursor in the worksheet and turns off the calculator. To cancel the operation without completing the calculation, press F4 again.

For example, let's do a calculation on a value in the Cashflow worksheet. Suppose a fourth quarter purchase of shipping materials was left out of the worksheet. Move the cursor to the fourth quarter column of the Shipping Mtrls row. Press F4 and the following message appears:



After the number 1,050, type **+672**, and then press Enter. PLAN adds 672 to the original value and places the result, 1722, in the worksheet:

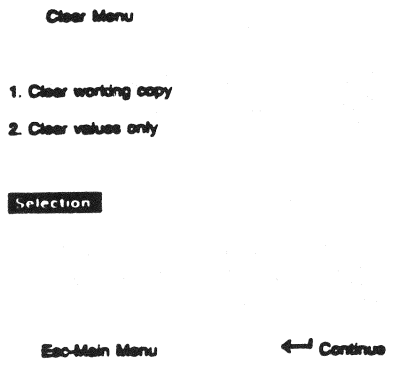


Using the Clear Function

Use the Clear function to erase all the contents of the working copy. Also use Clear to remove only the values in the working copy, if you want to reuse the same headings, formulas, and variables (see Chapter 8).

Selecting the Clear Function

To begin the Clear function, return to the Main Menu (press Esc, if necessary), type 6 in the Selection item, and press Enter. The Clear Menu appears on the screen:



To use an option from this menu, type its number in Selection and press Enter.

Clearing the Values in the Working Copy

You use the Clear Values Only option to erase only the values from a worksheet. Many times the design of a worksheet can be useful again and again. For example, once you have set up a budget, you can use the same basic format year after year.

Let's clear the values from the Cashflow worksheet in the working copy. First, press Esc to return to the Main Menu. Type **6** in Selection, and press Enter to display the Clear Menu. Now type **2** in Selection and press Enter again. PLAN displays the following warning:

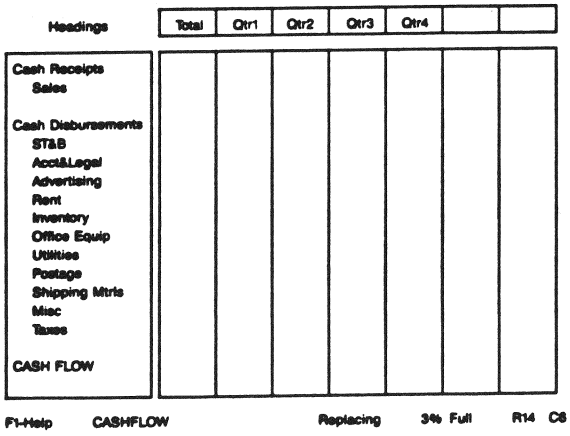
Warning

Values in Working Copy about to be cleared

Press Esc to return to Main Menu

Press ↵ to continue

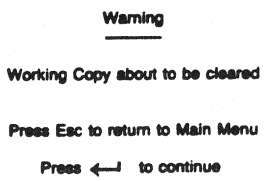
Since you do not need the values in this worksheet any longer, press Enter. PLAN clears the values from the worksheet and returns to the working copy, which now displays only row and column headings:



Clearing the Working Copy

The Clear Working Copy option, on the other hand, erases all the contents of the working copy, preparing it for a new worksheet.

For example, let's remove the entire Cashflow worksheet from the working copy. First, return to the Main Menu (press Esc, if necessary), type **6** in Selection, and press Enter to display the Clear Menu. Now type **1** in Selection and press Enter again. PLAN warns you that the working copy is about to be cleared:



Press Enter, and PLAN clears the worksheet from the working copy and returns to the now blank working copy.

Summary

- PLAN's cursor movement keys allow you to move easily around a worksheet.
- You can make simple corrections to a worksheet by typing over characters and by using Backspace, Insert (Ins), Delete (Del), and Erase Entry (F3).
- You can insert new rows and columns in a worksheet and remove, restore, and copy existing rows and columns.
- PLAN's four-function calculator (F4) allows you to perform calculations on a value previously typed, or currently being typed, into the worksheet.
- The Clear function erases the working copy so you can create a new worksheet. You can either:
  — clear all the contents of the working copy, or
  — clear only the values in the working copy.

6: all about groups, keywords and formulas

In Chapter 3, you learned that PLAN provides *keywords* — special words used to perform frequently-used calculations — and tried a simple use of the keyword @Total. This chapter explains how to use PLAN's keywords (except the financial keywords discussed in Chapter 7). Before talking about the keywords, it explains how to create and use groups of headings — an important part of using keywords and formulas.

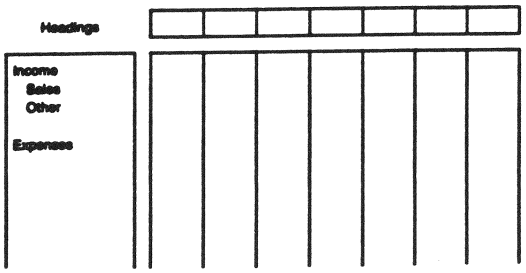
You also learned in Chapter 3 how to write a simple formula. This chapter explains how to refer in a formula to a range of row or column values or just one value. All of these features make PLAN capable of performing almost any task, while still being easy to use.

Why Groups are Important

When you create groups of headings, you enable certain keywords to work on a portion of a worksheet. Groups also allow you to use the same heading in different parts of a worksheet without confusion. In addition, groups clarify the organization of a worksheet, making it easy to read.

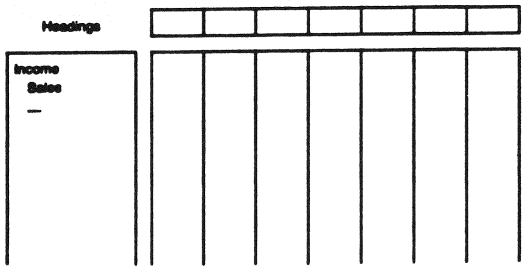
Grouping Row Headings

You create a group of row headings by indenting the members of the group under the group name, like this:



Income is the name of this group and Sales and Other are members of the group. Since Expenses is not indented, PLAN knows that it is not a member of the group.

PLAN makes it easy for you to line up your indented headings. Each time you press Enter in the row headings region, PLAN moves the cursor to the position directly below the first character of the heading just typed, like this:



If you want to end a group, move the cursor to the left until it lines up with the group heading and type the next heading.

For example, let's create a worksheet called Sales85 that contains groups. This worksheet compares sales figures, forecast and actual, for one classification of video games (Adventure Games) sold by VideoMail. Your working copy should be blank (use the Clear function, if necessary), and the cursor in the first position of the row headings region. Type

Adventure Games

as your first row heading. Press Enter to move to the next line, and press the space bar twice to indent two spaces. Type

Time Warp

(the name of one of the adventure games and the first member of the Adventure Games group) as the next heading. The Time Warp game has been developed for two video game machines, so let's create a sub-group under Time Warp that shows the sales for each machine.

Move to the next line and again press the space bar twice to indent two spaces. Type **Machine1**, press Enter, and type **Machine2**. Press Enter again, and then backspace twice to position the cursor under the T in Time Warp. Type

Total Time Warp

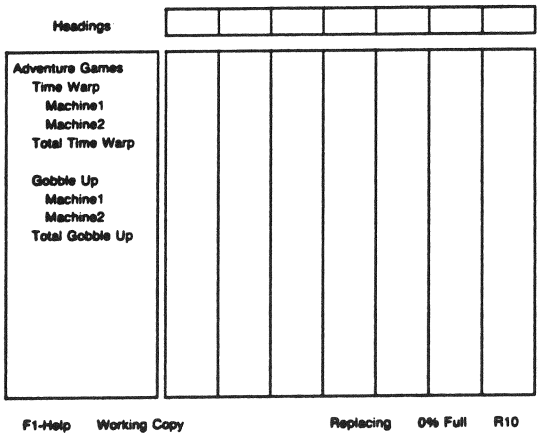
as the heading that ends this group. Now let's enter the name of another game. Press Enter twice to move down two rows and type

Gobble Up

as the second member of the Adventure Games group. Gobble Up has also been developed for Machine 1 and Machine 2, so press Enter, indent two spaces, and type **Machine1**. Press Enter again and type **Machine2**. Finally, press Enter one more time. Backspace two spaces to position the cursor under the G in Gobble Up, and type

Total Gobble Up

as the last heading, ending the group. Your screen should look like this:



Grouping Column Headings

You create groups in the column headings by stacking headings on top of each other — again with the group members under the group name. You might want to group the months of the year by quarters, for example, like this:

----------Qtr 1----------		
Jan	Feb	Mar

Or, you might want to group headings within each month, like this:

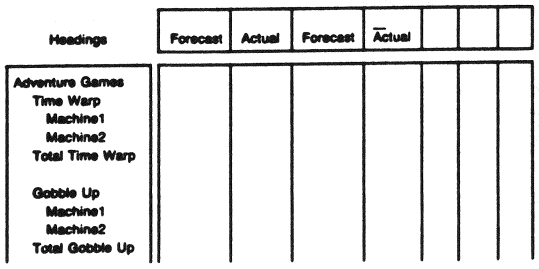
----------Jan----------		----------Feb----------	
Forecast	Actual	Forecast	Actual

By using F6 (Insert Row/Col) to create up to two additional rows in the column headings region, you can make room for a total of three levels of column headings.

To create a column group heading, first insert a blank row for the heading, and then type a few dashes in the first column that you want included in the group. (The dashes signal PLAN that you are doing a column grouping.) Next, type your group heading. Finally, type enough dashes to move the cursor into the last column that you want included in the group. Press Tab, and PLAN centers the group heading over the group members.

For example, let's create some column groupings in the Sales85 worksheet. Move the cursor to the first column of the column headings region and type **Forecast**. Press Tab, and type **Actual**. Now, press Tab again and type **Forecast** again. Press Tab and type **Actual** one more time.

Next, press F6 (Insert Row/Col), and type **R** to create a new row in which to create the column groups. The cursor is now positioned in this new row, at the beginning of the same column:



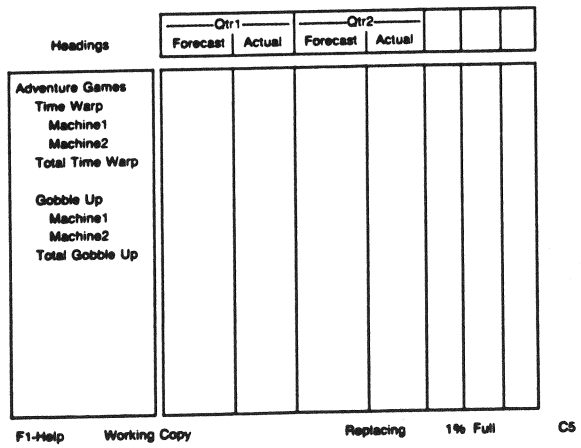
Move the cursor to the beginning of the row by pressing End and then the left-arrow key. Now type the following characters just as they appear here:

-Qtr1-----

(one dash, Qtr1, and five dashes). Press Tab, and your heading is centered over the first group of Forecast and Actual headings. Now type

---Qtr2---

(three dashes, Qtr2, and three dashes) and press Tab again. Your screen should look like this:



As you can see, any number of dashes can be used at the beginning of the group name.

Editing Column Groups

You may sometime want to extend a group heading to add the column at the right edge of the group. To do this, first move the cursor into the group heading, a few spaces to the left of the column to be added. Then, type enough dashes to cross the vertical line dividing the column group from the new column and press Tab. PLAN adjusts the group heading to include the new column. (To include the column at the left edge of the group, you must recreate the group heading, beginning the heading over the column to be included.)

To shorten a group heading by deleting the column at either edge from the group (but not from the worksheet), move the cursor into that portion of the group heading over the column to be deleted. Remove the dashes over the column and press Tab. PLAN adjusts the group heading to exclude the column.

If you insert or remove columns inside a group, PLAN automatically re-centers the group heading.

Using Keywords with Groups

Now that you know how groups are created, let's take a look at specific ways in which groups are used with keywords. The following chart shows the different ways in which the keywords @Total, @Avg, @Min and @Max can be used:

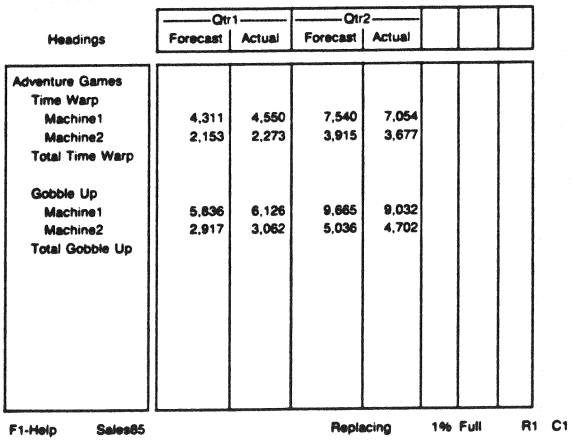
Keyword	What It Can Do
@Total	Total groups of rows or columns Total rows or columns with same heading (in different groups) Total all rows or columns
@Avg	Average groups of rows or columns Average rows or columns with same heading (in different groups) Average all rows or columns
@Min	Find smallest value in group of rows or columns Find smallest value in rows or columns with same heading (in different groups) Find smallest value in all rows or columns
@Max	Find largest value in group of rows or columns Find largest value in rows or columns with same heading (in different groups) Find largest value in all rows or columns

You can see from this chart how important groups are to these four keywords. Each of them may be used by itself in a group, or they may be combined with one another in a group. Combining them in a group is possible because each of the keywords knows to exclude other keyword calculations (except @Prev, @Grow, and @Payment) from its own calculation. The following sections explain how to use @Total, @Avg, @Min, and @Max in each situation listed in the above chart.

@Total, @Avg, @Min, and @Max with Groups of Rows

To use @Total, @Avg, @Min, and @Max with a group of rows, type the keyword in the formula region (press F9) to the left of the row where you want the keyword values to appear. (Use any heading you choose in the headings region to the right of the keyword formula.) Type the group heading immediately after the keyword, and press Enter. The keyword values appear in the worksheet.

For example, let's use @Total with the groups in the Sales85 worksheet. But first, you need some values. Use the Get function to retrieve a copy of the Sales85 worksheet from the PLAN program diskette. As you retrieve the worksheet, PLAN displays a message saying that your latest changes have not been saved. Disregard this message and press Enter to complete the operation. This copy of Sales85 contains values and looks like this:



Headings	Qtr1 Forecast	Qtr1 Actual	Qtr2 Forecast	Qtr2 Actual
Adventure Games				
Time Warp				
Machine1	4,311	4,550	7,540	7,054
Machine2	2,153	2,273	3,915	3,677
Total Time Warp				
Gobble Up				
Machine1	5,836	6,126	9,665	9,032
Machine2	2,917	3,062	5,036	4,702
Total Gobble Up				

F1-Help Sales85 Replacing 1% Full R1 C1

To total the groups of rows in this worksheet, first press F9, the Formula key. Then, move the cursor into the formula region to the left of the Total Time Warp row, type

@Total Time Warp

and press Enter. The numbers that appear in the Total Time Warp row are a total of the Time Warp Machine1 and Time Warp Machine2 rows.

Now move to the formula region to the left of the Total Gobble Up row. Type

@Total Gobble Up

and press Enter again. The totals for the Gobble Up group appear on the screen:

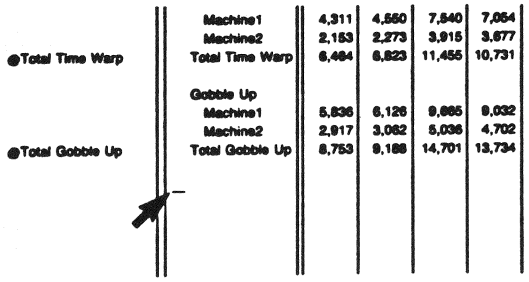
	Adventure Games				
	Time Warp				
	Machine1	4,311	4,550	7,540	7,054
	Machine2	2,153	2,273	3,915	3,677
@Total Time Warp	Total Time Warp	6,464	6,823	11,455	10,731
	Gobble Up				
	Machine1	5,836	6,128	9,985	9,032
	Machine2	2,917	3,062	5,036	4,702
@Total Gobble Up	Total Gobble Up	8,753	9,188	14,701	13,734

@Total, @Avg, @Min, and @Max and Rows with Same Heading

To have @Total, @Avg, @Min, and @Max perform a calculation on all rows that share the same heading, even though they are in different groups in the worksheet, type the keyword in the formula region to the left of the row where you want the keyword values to appear. Type the row heading to which the keyword refers immediately after the keyword.

The heading used with this keyword formula should begin at the left margin of the row headings region, since rows with the same heading but in different groups can be at a variety of indentations in the worksheet (see the *Why Indentation is Important in Row Groups* section that follows).

For example, using the Sales85 worksheet again, let's have PLAN total the sales income from all games developed for Machine1 and Machine2 and from all Adventure Games. First, move the cursor to the second blank row below the Total Gobble Up heading (make sure it's at the left margin of the row headings region):



Type the following headings in the next two rows

Total Machine1
Total Machine2

and press Enter. This time type

Total Adventure Games

as the final row heading in the worksheet.

Now press Shift-Tab to move into the formulas region and move the cursor to the row whose heading is Total Machine1. Type

@Total Machine1

and press Enter. The totals that appear in this row are the sum of the Time Warp Machine1 values and the Gobble Up Machine1 values.

In the formula region for the Total Machine2 row, type

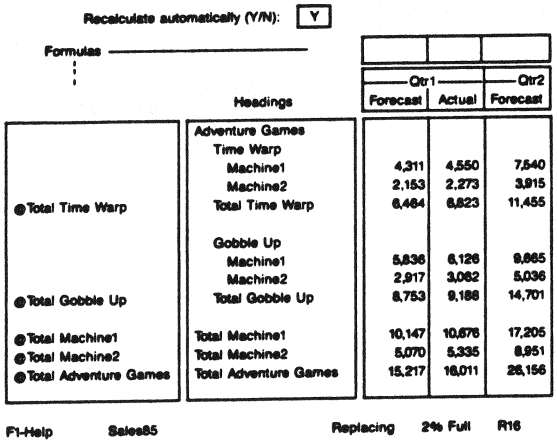
@Total Machine2

and press Enter to have PLAN calculate the total sales for Machine2.

Finally, let's total the sales for all Adventure Games. Type

@Total Adventure Games

and press Enter one more time. @Total calculates the total sales from all Adventure Games, without including any of the other total rows within the group, and places these totals in the worksheet. (@Total, @Avg, @Min, and @Max always exclude other rows and columns containing keyword formulas, including themselves, from their calculations.) Your screen should now look like this:

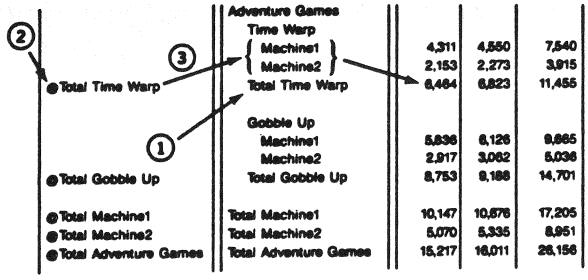


Why Indentation is Important in Row Groups

The indentation of row headings begins from the left margin of the row headings region. Your major groups are at the left margin of the worksheet with sub-groups indented under them. (It works like an outline for a report or a speech.)

By creating groups, you limit the worksheet area in which a keyword (or any formula) works. A keyword or formula for a row heading positioned at the left margin of the worksheet has no limits. It works on the entire worksheet. This is why you placed the Total Machine1 and Total Machine2 row headings at the left margin of the worksheet in the example for the previous section. By being at the left margin, these headings included every indentation level in the worksheet, and their keyword formulas could find all matching headings at any level in the worksheet.

When you use a formula with a row that has an indented heading (i.e., a member of a group), that formula looks within its own group for any heading to which it refers. When you used @Total Time Warp next to the row heading Total Time Warp in the example for the *@Total, @Avg, @Min, and @Max with Groups of Rows* section, it looked within its group for the heading Time Warp. Let's look at it again:



1. The Total Time Warp heading is indented at the same level as the headings Time Warp, Gobble Up, and Total Gobble Up. They are all members of the Adventure Games group.

2. The keyword formula @Total Time Warp looks at the same level of indentation as the Total Time Warp heading for a heading called Time Warp.

3. Finding Time Warp a group heading, PLAN totals the members of the group in its calculation.

If a keyword or formula can't find a heading within its own group, it looks in the next closest group to the left. If it can't find the heading there, it continues to move out through the worksheet until it eventually finds a matching heading. If no heading is found, perhaps because of a typing error, an error message is displayed.

Distinguishing Rows and Columns with the Same Heading

When a heading has been used in several rows or columns in a worksheet, it is important to tell PLAN how to distinguish between the rows or columns when you want to refer to *one* of them in a formula *outside* of its group. To specify one of several identical headings, combine the heading with its group name. For instance, to use the values from the Machine1 row for the Time Warp group in a calculation outside of that group, type the name as Time Warp Machine1.

@Total, @Avg, @Min, and @Max with Groups of Columns

You can use @Total, @Avg, @Min, and @Max with a group of columns in your worksheet by combining the keyword with the group name in the formula region of a column, like this example using @Max:

Formulas					@Max Qtr1		
		Qtr1			Maximum	Qtr2	
	Headings	Jan	Feb	Mar	Sales	Apr	May
	Sales						
	Product 1	100	80	88	100	75	78
	Product 2	25	19	22	25	31	29
	Product 3	45	40	52	52	55	55
@Total Sales	Total Sales	170	109	132	170	161	163

In this example, PLAN looks at the values in Jan, Feb, and Mar, which are grouped under the heading Qtr1, and places the largest sales value for each product for the three-month period in the Maximum Sales column.

@Total, @Avg, @Min, and @Max and Columns with Same Heading

@Total, @Avg, @Min, and @Max can also perform calculations on all columns that share the same heading, though they are in different groups in the worksheet. Type a formula for a column that combines the keyword and the heading from the columns you want to use with the keyword.

For example, let's total all the forecast columns and then all the actual columns in the Sales85 worksheet. Move to the column headings region and type the headings

Total Forecast **Total Actual**

as column headings, each in its own column, like this:

Headings	Qtr1		Qtr2		Total	Total
	Forecast	Actual	Forecast	Actual	Forecast	Actual
Adventure Games						
Time Warp						
Machine1	4,311	4,550	7,540	7,054		
Machine2	2,153	2,273	3,915	3,677		
Total Time Warp	6,464	6,823	11,455	10,731		
Gobble Up						
Machine1	5,836	6,126	9,665	9,032		
Machine2	2,917	3,062	5,036	4,702		
Total Gobble Up	8,753	9,188	14,701	13,734		

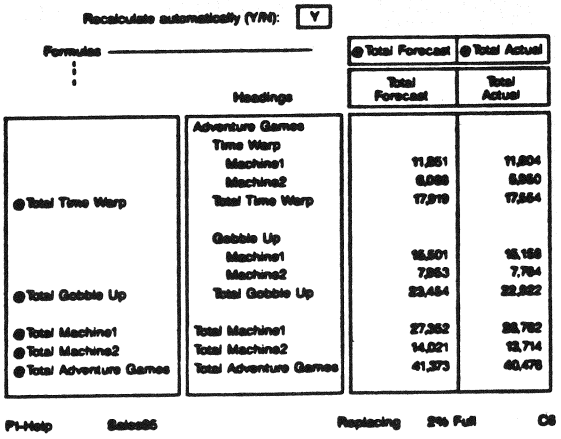
Now move into the formula region above the Total Forecast column and type

@Total Forecast

as the formula. Finally, move into the formula region above the Total Actual column, type

@Total Actual

and press Enter. Your totals should look like this:



Suppose you added third and fourth quarter Forecast and Actual columns to the right of the Total Actual and Total Forecast columns. @Total Actual and @Total Forecast would then give you the totals for all four quarters, even though the third and fourth quarter information appears to the right of the totals columns.

@Total, @Avg, @Min, and @Max with all Rows or Columns

To use @Total, @Avg, @Min, and @Max to perform calculations on all the rows or all the columns in the worksheet, follow these guidelines:

- for rows, position the heading for the row in which the keyword is used at the left margin (not part of a group)
- for columns, make sure the heading for the column in which the keyword is used is not part of a column group
- use the selected keyword alone in the row or column formulas region (i.e., do not combine the keyword with any heading)

Using @Cum, @Grow, @Prev, and @Start

The keywords @Cum and @Grow work on an individual row or column. @Prev refers to a previous single value in the worksheet, and @Start is used only to support @Cum, @Grow and @Prev. (@Start can also be used with the financial keyword @FV, explained in Chapter 7.) The following sections give specific instructions on using these keywords and show how they might be used in a worksheet.

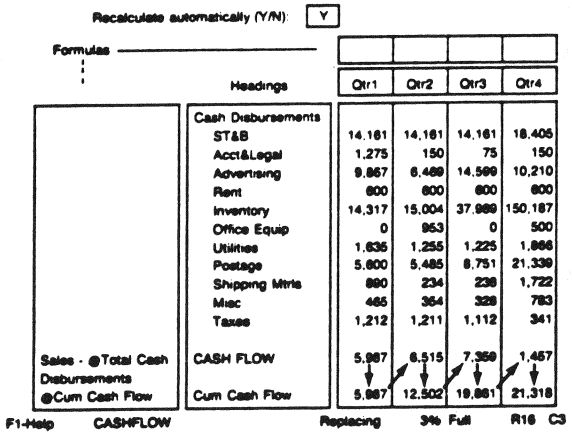
@Cum

Use @Cum to calculate cumulative totals of values in a row or column. To use @Cum, type

@Cum "row or column heading"

as the formula for another row or column.

Suppose you want to calculate the cumulative cash flow in a worksheet like the Cashflow worksheet used in Chapters 4 and 5. It would look like this:

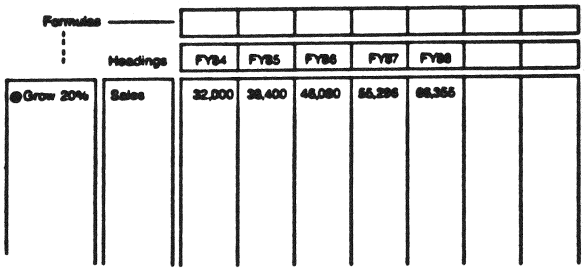

Recalculate automatically (Y/N): Y
Formulas
Headings
Qtr1
Qtr2
Qtr3
Qtr4
Cash Disbursements
ST&B 14,161 14,161 14,161 18,405
Acct&Legal 1,275 150 75 150
Advertising 9,867 6,469 14,599 10,210
Rent 800 800 800 800
Inventory 14,317 15,004 37,989 150,187
Office Equip 0 953 0 500
Utilities 1,635 1,255 1,225 1,866
Postage 5,600 5,485 8,751 21,339
Shipping Mtrls 890 234 239 1,722
Misc 465 354 329 783
Taxes 1,212 1,211 1,112 341
Sales - @Total Cash Disbursements
CASH FLOW 5,987 6,515 7,359 1,457
@Cum Cash Flow
Cum Cash Flow 5,987 12,502 19,861 21,318
F1-Help CASHFLOW Replacing 3% Full R16 C3

When @Cum calculates the cumulative value for the first quarter, it automatically adds zero to the first quarter cash flow value. When it calculates the second quarter cumulative value, @Cum takes the first quarter cumulative value and adds it to the second quarter cash flow value, and so on.

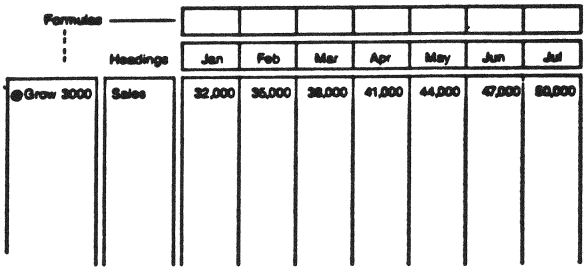
@Grow

You use the keyword @Grow to have PLAN automatically enter values in a row or column where each successive value is a certain amount greater (or less) than the one before it.

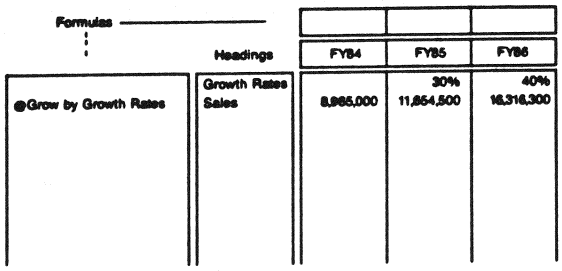
Suppose, for example, you want to see what it would look like if sales grew at a rate of 20% a year. Type @Grow 20% as the formula for the Sales row (being sure to include the percent sign) and type the first value in that row. PLAN does the rest. It might look like this:



You can also have PLAN simply add a set amount to each value in a row or column. For instance, you might type @Grow 3000 in the formula region for a row and then type the first value in that row. PLAN automatically fills in the rest of the values, adding 3000 to each successive value. It might look like this:



Growing by a Row of Growth Rates. You can vary the growth rate used with @Grow (e.g., have Sales grow by 30% one year, 40% the next year, etc.) by setting up your worksheet like this:



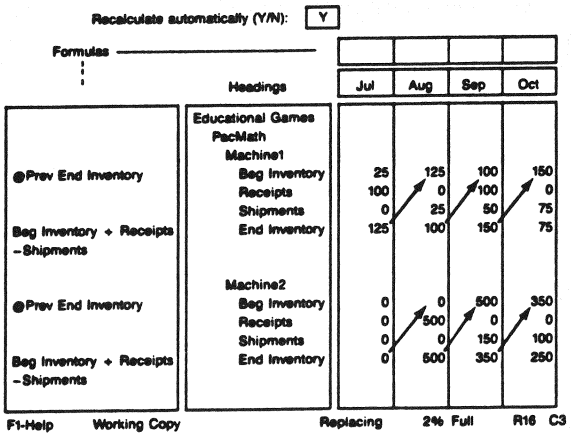
Note that using the preposition "by" with @Grow is optional. Also, see *Formatting the Worksheet* in Chapter 8 to display numbers as percentages.

To calculate the Sales values for a particular year in this worksheet, PLAN increases the sales for the previous year by the growth rate specified (i.e., to calculate the Sales for FY85, PLAN increases the FY84 sales value by 30%).

@Prev

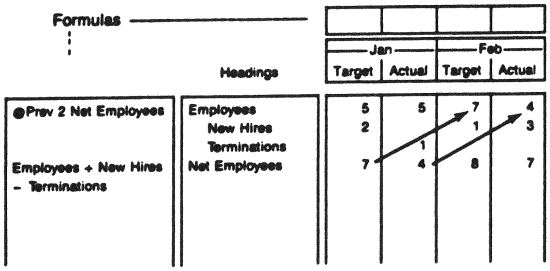
@Prev is a keyword that is ordinarily used in row formulas. It does not perform a calculation on another row or rows, but looks backward in the worksheet to find an existing value that is needed for a current calculation.

For instance, look at the following worksheet used to track inventory:



All inventory information for July is typed in, and then, as the arrows indicate, the keyword phrase @Prev End Inventory looks backward to find the ending inventory for July and uses it as the beginning inventory for August.

If the value that @Prev is looking for is more than one column back in the worksheet, specify how many columns @Prev has to go back to find the value needed. For instance, look at the following worksheet used to track staffing:



In this worksheet, the figures for Employees in Jan (Target and Actual) are typed in, and then, as the arrows indicate, the formula @Prev 2 Net Employees tells PLAN to look back two columns and use the Net Employees Target and Actual figures for Jan as the Employees Target and Actual values for Feb, and so on.

@Start

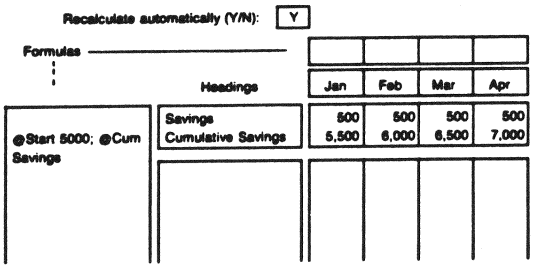
The keyword @Start lets you create from one to five start values for the keywords @Cum, @Prev, and @Grow. Start values are historical values that are not included in the current worksheet, but are important to calculations in the current worksheet. For instance, if you have a Savings row in your budget for the current year, you might use @Start to add into the budget the balance in savings at the end of last year.

To use @Start, type

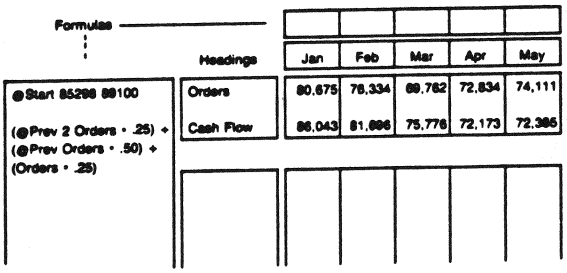
@Start "n"; "keyword formula"

in the formula region for a row or column. Up to five values or variable names (see Chapter 7) can be used for "n". If you are using several start values (perhaps you want @Prev to look back for more than one value), use a space to separate the values from each other (e.g., @Start 5 5 5). Use a semi-colon to separate @Start and its start values from the keyword it is used with or from other formulas in the region. (Two keywords or formulas used for the same row or column must always be separated by a semi-colon.)

Using @Start with @Cum. Suppose you want to calculate cumulative totals of the amount you save each month, and you want to include in your totals the amount in savings at the end of last year. Your worksheet might look like this:



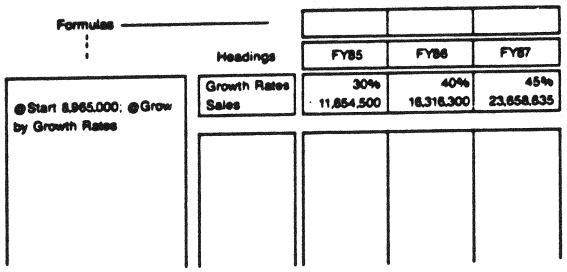
Using @Start with @Prev. Suppose that the total revenue received by a company in a month from product sales is divided as follows: 25% of the revenue is from sales orders made two months ago, 50% of the revenue is from orders made last month, and 25% of the revenue is from orders made during the current month. Now look at the following worksheet:



The start values in this worksheet are the historical value for Orders. They provide PLAN with two Orders values, one for November (85298) and one for December (89100) of the previous year. The formula for Cash Flow tells PLAN to add 25% of 85298, 50% of 89100, and 25% of 80675 and place the result in Jan Cash Flow, and so on.

Notice that in this example @Start is not used on the same row as @Prev, because @Prev is looking in the Orders row for its values.

Using @Start with @Grow. Look at the following worksheet, which is similar to the worksheet used in the *Growing by a Row of Growth Rates* section earlier in this chapter:



In this worksheet, PLAN again calculates the Sales values for a given year by increasing the sales for the previous year by the growth rate specified. This time, however, @Start provides the Sales value for FY84, and to calculate the Sales for FY85, PLAN increases the FY84 sales value by 30%.

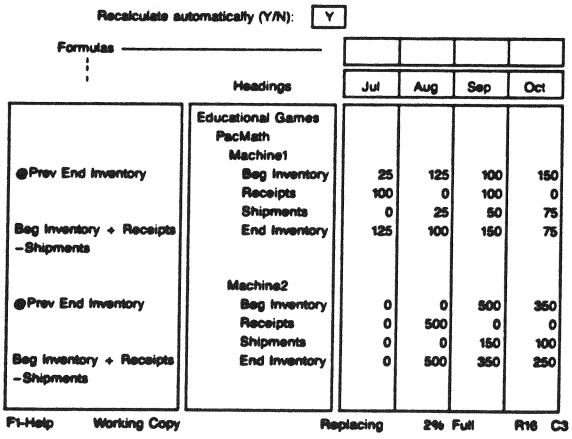
More about Formulas

Usually, a PLAN formula performs its calculations on every value in the specified row or column (e.g., all the worksheet examples used thus far in this manual). Most of the time, you want PLAN to calculate the entire row or column. But other times, one formula might not be appropriate for all the values in a row or column. PLAN allows you to create multiple formulas for a row or column, separated by semi-colons, each controlling only specified values in the row or column. You can even refer to just one value (or cell) in a row or column.

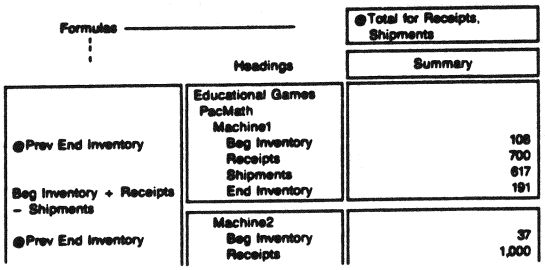
Formulas Referring to Only Specified Values (using "for" and "except")

To create a formula that refers to only specified values in a row or column, type the word "for" (or "except") at the end of the formula (without quotation marks) followed by a list of the row or column headings for those values that PLAN is to use in (or exclude from) the calculation.

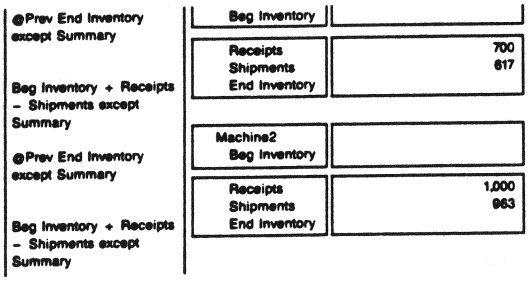
For instance, let's look at the inventory worksheet used in the *@Prev* section again:



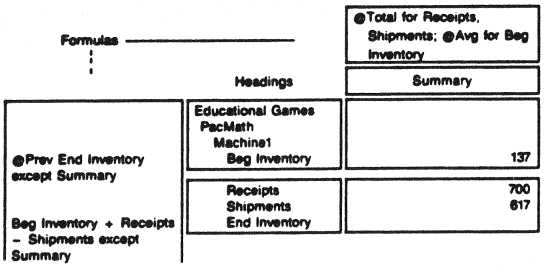
In this worksheet, you might want to see a total of the receipts and shipments for the six-month period, but exclude totals for the beginning and ending inventory rows, since such totals would be meaningless. To total the receipts and shipments, you would create a column formula with a "for" phrase, like this:



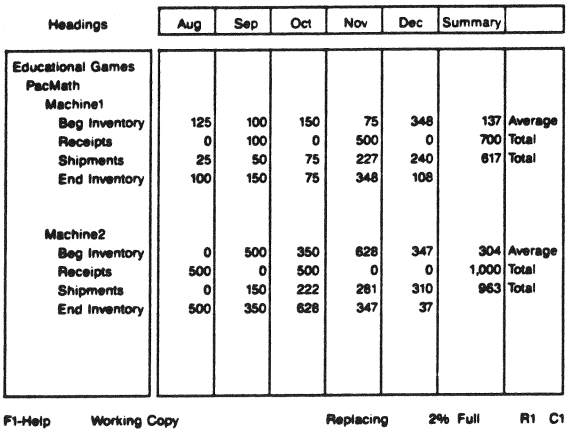
Then, you would use an "except" phrase in the Beg Inventory and End Inventory rows to eliminate the Summary column from their calculations, like this:



You could also add another formula to do a different calculation on other worksheet rows. For instance, maybe you want to see an average beginning inventory figure. The formula would look like this (notice the semicolon separating the two formulas):



After all the above changes, the inventory worksheet would look like this:



The "for" or "except" phrase can refer to a single row or column heading, to a group heading, to several row or column headings (separated by commas), or to a single heading that refers to several different rows or columns in the worksheet.

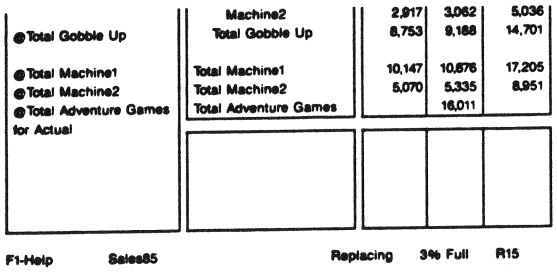
When using "for" or "except" phrases, follow these guidelines:

- use only one "for" *or* one "except" phrase in a single formula
- make sure that "for" or "except" phrases in multiple formulas in the same row or column do not refer to the same values
- in a row formula, only refer to column headings in a "for" or "except" phrase; in a column formula, only refer to row headings

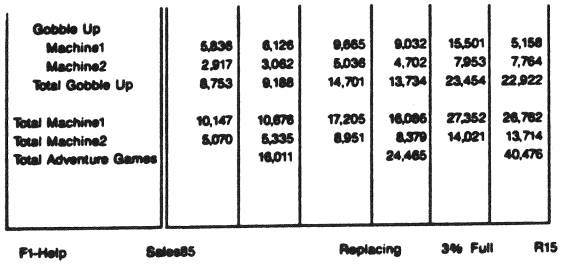
For example, suppose in the Sales85 worksheet you want to see only the actual values in the Total Adventure Games row. Press F9 and move the cursor into the formula region to the left of this row. Type the phrase

for Actual

after the phrase @Total Adventure Games, which is already there, and press Enter. Your formula would now look like this:



Now press F9. Your screen should look like this:



Now save the completed Sales85 worksheet to the diskette on which you saved the income statement in Chapter 4.

Formulas Referring to One Value (using "in")

Formulas can also refer to just one value location (or cell) in a worksheet. To do this, type the heading for the row (or column) that the value is in, then the word "in", and finally the heading for the column (or row) the value is in (which heading you use first is not important). For instance, the phrase "Sales in January" in a worksheet where Sales is a row heading refers to the Sales value in the January column.

	January	February	March
Sales	34,987	29,006	33,789

Suppose, for instance, you want to see what percentage the sales for the different games and machines are of the total sales for all the Adventure Games. You could use the formula

Total Actual / Total Actual in Total Adventure Games

to create these percentages in your worksheet. It would look like this:

Headings	Actual	Qtr2 Forecast	Qtr2 Actual	Total Forecast	Total Actual	% of Total
Adventure Games						
Time Warp						
Machine1	4,550	7,540	7,054	11,851	11,084	29%
Machine2	2,273	3,915	3,677	6,068	5,950	15%
Total Time Warp	6,823	11,455	10,731	17,919	17,554	43%
Gobble Up						
Machine1	6,126	9,665	9,032	15,501	15,158	37%
Machine2	3,062	5,036	4,702	7,953	7,764	19%
Total Gobble Up	9,188	14,701	13,734	23,454	22,922	57%
Total Machine1	10,676	17,205	16,086	27,352	26,762	66%
Total Machine2	5,335	8,951	8,379	14,021	13,714	34%
Total Adventure Games	16,011		24,465		40,476	100%

F1-Help Sales85 Replacing 3% Full R16 C3

The formula for the % of Total column causes each value in the Total Actual column to be divided by the Total Actual value in the Total Adventure Games row. Using a percent format for the column causes the values to be displayed as percentages (see *Formatting the Worksheet* in Chapter 8).

Summary

- Grouping headings in a worksheet:
  — enables keywords to work on a portion of a worksheet
  — allows you to use the same heading more than once in a worksheet
  — organizes the worksheet visually
- Keywords are special words that instruct PLAN to automatically perform certain commonly-used calculations.
- Keywords discussed in this chapter are @Total, @Avg, @Min, @Max, @Cum, @Grow, @Prev, and @Start.
- Formulas may refer to only specified values in a row or column (by using "for" or "except"), or to only one value in a row or column (by using "in").

7: playing "what if?" with PLAN

This chapter discusses those features of PLAN that are particularly useful in making business decisions. It includes PLAN's financial keywords and assumes that you know how to use the financial functions associated with these keywords. It also includes Variables and the Target function.

The Financial Keywords

PLAN's financial keywords allow you to calculate net present value (@NPV), future value (@FV), and loan payments (@Payment). (You can also calculate internal rate of return by combining @NPV with the Target function.) These keywords, like other PLAN keywords, are typed in the formulas regions (F9).

@NPV (Net Present Value)

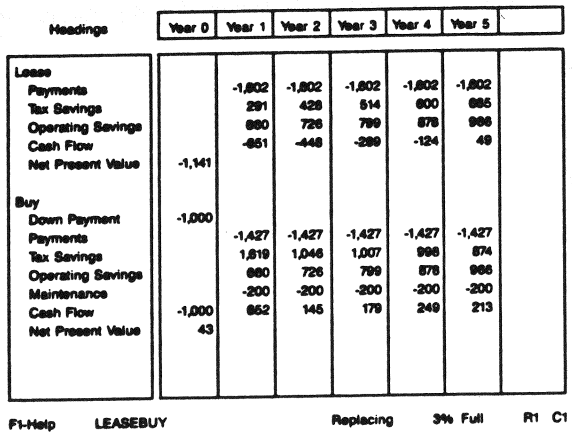
The keyword @NPV calculates the present value of future cash inflows and outflows from a project or investment, less the initial cash outlay, at a given discount rate. @NPV performs its calculation on a designated row or column. It places the @NPV value in the first position of the @NPV row or column that is included in the calculation.

To calculate net present value, type

@NPV of "row or column heading" **at** "i"**%**

as the formula for another row or column (typing those characters shown in bold exactly as they appear here). Enter the discount or interest rate (i) as a per period rate; that is, if the time period involved in the net present value calculation is 12 months and the annual simple interest rate is 12%, i should be 1. The "i" may also be a row or column of varying interest rates or a variable (see the *Using Variables* section later in this chapter).

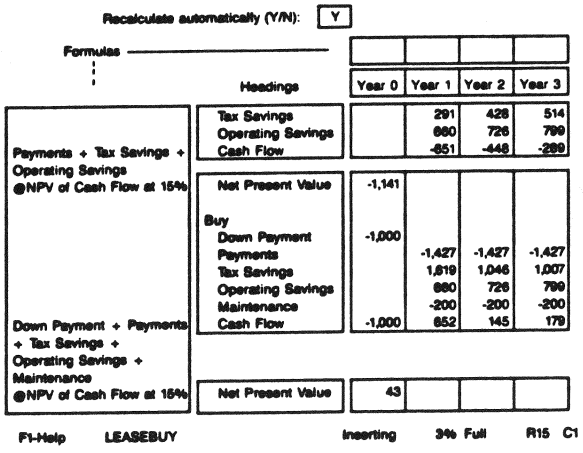
Here is an example of how you might use @NPV to decide whether to lease or buy a copier for your office:



Headings	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Lease						
Payments		-1,802	-1,802	-1,802	-1,802	-1,802
Tax Savings		291	428	514	600	685
Operating Savings		660	726	799	878	966
Cash Flow		-851	-448	-289	-124	49
Net Present Value	-1,141					
Buy						
Down Payment	-1,000					
Payments		-1,427	-1,427	-1,427	-1,427	-1,427
Tax Savings		1,619	1,046	1,007	998	874
Operating Savings		660	726	799	878	966
Maintenance		-200	-200	-200	-200	-200
Cash Flow	-1,000	652	145	179	249	213
Net Present Value	43					

F1-Help LEASEBUY Replacing 3% Full R1 C1

This worksheet uses a Year 0 column to provide the initial cash outlays for the net present value calculations (leaving the column blank indicates no initial cash outlay for the Lease calculation). The formulas for both net present value rows look like this:

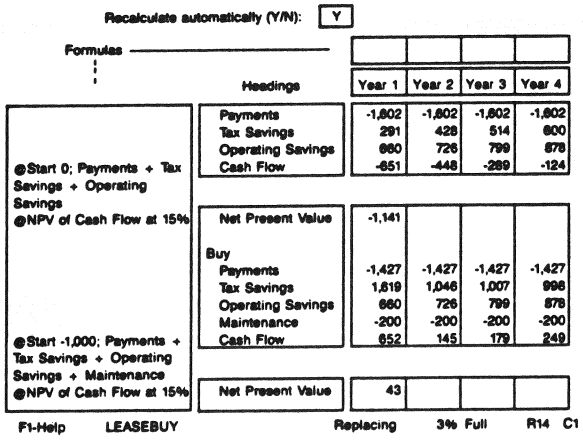


Recalculate automatically (Y/N): Y

Formulas	Headings	Year 0	Year 1	Year 2	Year 3
	Tax Savings		291	428	514
	Operating Savings		660	726	799
	Cash Flow		-851	-448	-289
Payments + Tax Savings + Operating Savings @NPV of Cash Flow at 15%	Net Present Value	-1,141			
	Buy				
	Down Payment	-1,000			
	Payments		-1,427	-1,427	-1,427
	Tax Savings		1,619	1,046	1,007
	Operating Savings		660	726	799
	Maintenance		-200	-200	-200
Down Payment + Payments + Tax Savings + Operating Savings + Maintenance @NPV of Cash Flow at 15%	Cash Flow	-1,000	652	145	179
	Net Present Value	43			

F1-Help LEASEBUY Inserting 3% Full R15 C1

You can also use @Start to provide the initial cash outlay for net present value calculations. In the lease versus buy example, it would look like this:



Recalculate automatically (Y/N): Y

Formulas	Headings	Year 1	Year 2	Year 3	Year 4
	Payments	-1,802	-1,802	-1,802	-1,802
	Tax Savings	291	428	514	600
	Operating Savings	660	726	799	878
@Start 0; Payments + Tax Savings + Operating Savings	Cash Flow	-851	-448	-289	-124
@NPV of Cash Flow at 15%	Net Present Value	-1,141			
	Buy				
	Payments	-1,427	-1,427	-1,427	-1,427
	Tax Savings	1,619	1,046	1,007	998
	Operating Savings	660	726	799	878
	Maintenance	-200	-200	-200	-200
@Start -1,000; Payments + Tax Savings + Operating Savings + Maintenance	Cash Flow	652	145	179	249
@NPV of Cash Flow at 15%	Net Present Value	43			

F1-Help LEASEBUY Replacing 3% Full R14 C1

Note: The formula for @NPV is:

$$NPV = CF_0 + \frac{CF_1}{(1+i)} + \frac{CF_2}{(1+i)^2} + \ldots + \frac{CF_x}{(1+i)^x}$$

where CF_n = Cash Flow at row or column n (n = row or column number)
i = interest rate
x = last row or column in worksheet

@FV (Future Value)

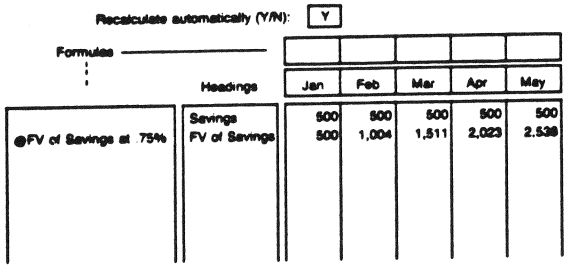
@FV calculates the future value of money invested today (or over a period of time), given a compound interest rate. @FV (future value) performs its calculation on a designated row or column, and it fills in values in an entire row or column.

To calculate future value, type

@FV of "row or column heading" at "i"%

as the formula for another row or column (again typing those characters shown in bold exactly as they appear here) and make sure the interest rate you use for i is a per period rate. As with @NPV, i may also be a row or column of varying interest rates or a variable (see the *Using Variables* section later in this chapter).

Suppose, for example, you want to see the total value of your savings at the end of a year, including accrued interest. It might look like this:



Note: The formula for @FV is: $FV_n = (FV_{n-1})(1+i) + CF_n$

where FV_n = Future value at row or column n
CF_n = Cash Flow at row or column n
n = row or column number
i = interest rate

@Payment

The keyword @Payment is made up of three elements — loan amount, length of time involved (in number of periods), and interest rate (per period).

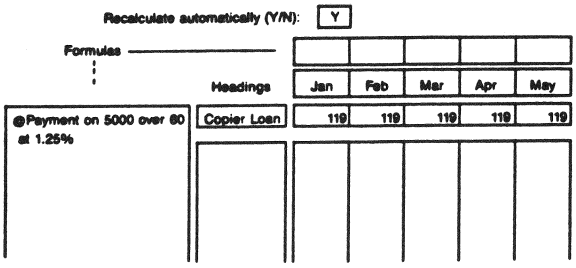
@Payment calculates a single value — the per period payment amount for the loan — and usually fills in the entire row or column with this number. If the number of periods specified in the @Payment formula is less than the number of rows or columns available in the worksheet, however, @Payment places as many values in the worksheet as there are number of periods specified in the formula.

To calculate a payment, type

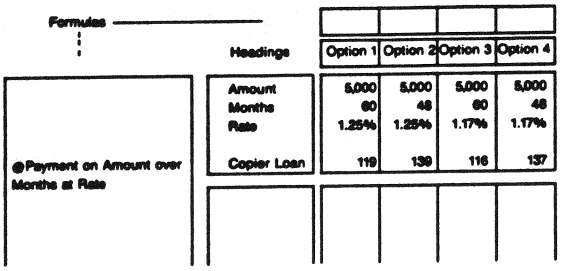
@Payment on "amount" **over** "n periods" **at** "i"**%**

as the formula for a row or column (typing those characters shown in bold exactly as they appear here). The "amount" is the total amount of the loan. The "n periods" is the total number of periods in the life of the loan (e.g., for a 30-year loan with monthly payments, this number is 360), and "i" is the annual interest rate for the loan divided into a per period rate (e.g., a 15% annual rate for a loan with monthly payments is entered as 1.25%). The three elements can be entered into the keyword formula as values, variables (see the *Using Variables* section later in this chapter), or row or column headings (referring to rows or columns of varying loan amounts, time periods, and interest rates).

Suppose, for example, you want to use @Payment to calculate the monthly payment on a loan of $5000 for 5 years at an annual rate of 15%. It would look like this:



You could also set up your worksheet like this, and see what the payments for different amounts, numbers of periods, and interest rate combinations would be:



Note: The formula for @Payment is: $$\text{Payment} = \frac{L * i}{1 - \frac{1}{(1 + i)^n}}$$

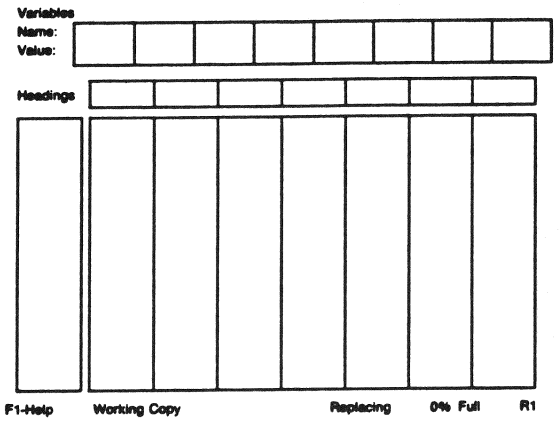
where L = loan amount
i = interest rate
n = number of periods

Using Variables and the Target Function

The Variable and Target function keys allow you to easily create and evaluate different plans. Variables and Target are like opposite sides of the same coin. With Variables you can create different sets of circumstances in order to see what the end result will be. With Target, you can say what you want the end result to be, and then find the circumstance that allows you to get to this end result.

Using Variables

The variables region appears at the top of the screen when you press Shift-F9, the Variables key:



Move the cursor into the variables region from the worksheet using the up-arrow key. Create a variable by typing a name in the name section, avoiding names that have been used as row or column headings, and then typing a value in the value section directly below the name. Use Enter to move from each variable name to its value. PLAN allows you to create up to 20 variables with names of up to 25 characters each (including spaces) per worksheet.

Once you create a variable, you can use its name in any formula. Whenever PLAN sees the variable name, it uses the associated value in whatever calculation it is performing. If you change the value associated with the variable name, PLAN recalculates the worksheet based on the change (as long as Recalculate Automatically is set to Y). If you want to see the variables with your formulas, press Shift-F9 when the formulas are on the screen (or press F9 when the variables are on the screen).

For example, suppose you want to compare the payments for a new copier to the amounts you are currently spending for office equipment. Retrieve the worksheet named Expenses from your PFS:PLAN diskette. It looks like this:

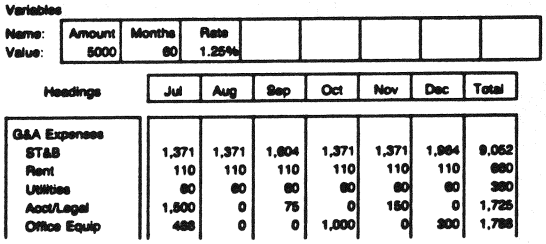
Headings	Jul	Aug	Sep	Oct	Nov	Dec	Total
G&A Expenses							
ST&B	1,371	1,371	1,804	1,371	1,371	1,984	9,052
Rent	110	110	110	110	110	110	660
Utilities	60	60	60	60	60	60	360
Acct/Legal	1,500	0	75	0	150	0	1,725
Office Equip	488	0	0	1,000	0	300	1,788
Misc	34	15	19	0	63	148	279
Total G&A Expenses	3,563	1,556	1,868	2,541	1,754	2,562	13,864

With the worksheet on the screen, press Shift-F9, and then move to the first position of the variables region:

Variables
Name: _
Value:

Headings	Jul	Aug	Sep	Oct	Nov	Dec	Total
G&A Expenses							
ST&B	1,371	1,371	1,804	1,371	1,371	1,984	9,052
Rent	110	110	110	110	110	110	660
Utilities	60	60	60	60	60	60	360
Acct/Legal	1,500	0	75	0	150	0	1,725
Office Equip	488	0	0	1,000	0	300	1,788

Type **Amount**. Then press Enter and type **5000** as the value for Amount. Press up arrow and then Tab to move to the next variable section. Type **Months**, press Enter, and type **60** as the value for Months. Move to the next section and type **Rate**. Press Enter and type **1.25%** as the value for Rate. Your screen should look like this:



Variables

Name:	Amount	Months	Rate					
Value:	5000	60	1.25%					

Headings	Jul	Aug	Sep	Oct	Nov	Dec	Total
G&A Expenses							
ST&B	1,371	1,371	1,604	1,371	1,371	1,964	9,052
Rent	110	110	110	110	110	110	660
Utilities	60	60	60	60	60	60	360
Acct/Legal	1,500	0	75	0	150	0	1,725
Office Equip	488	0	0	1,000	0	300	1,788

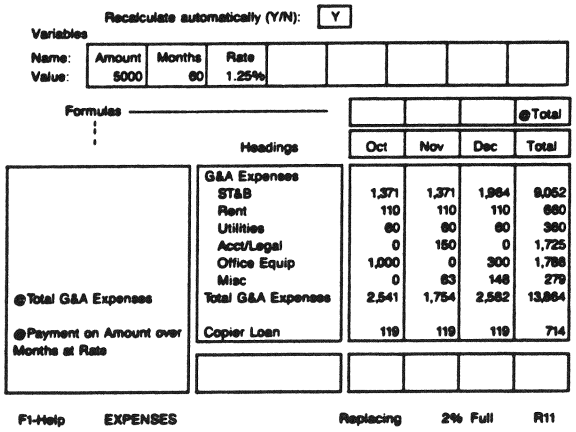
Move back into the worksheet using the down-arrow key or Home. Then move into the headings region of the second blank row below Total G&A Expenses and type

Copier Loan

as the heading. Next press F9, PLAN's Formula key. Move into the formula region to the left of Copier Loan and type

@Payment on Amount over Months at Rate

as the formula. Finally, press Enter. Your screen should now look like this:



Recalculate automatically (Y/N): Y

Variables

Name:	Amount	Months	Rate					
Value:	5000	60	1.25%					

Formulas

Headings	Oct	Nov	Dec	@Total Total
G&A Expenses				
ST&B	1,371	1,371	1,964	9,052
Rent	110	110	110	660
Utilities	60	60	60	360
Acct/Legal	0	150	0	1,725
Office Equip	1,000	0	300	1,788
Misc	0	63	148	279
@Total G&A Expenses	2,541	1,754	2,582	13,864
@Payment on Amount over Months at Rate				
Copier Loan	119	119	119	714

F1-Help EXPENSES Replacing 2% Full R11

Now you can compare the cost of the copier to the amount spent for office equipment during the first half of the fiscal year. And, you can change the variable values (all or only one) to compare the costs of different loans for the copier.

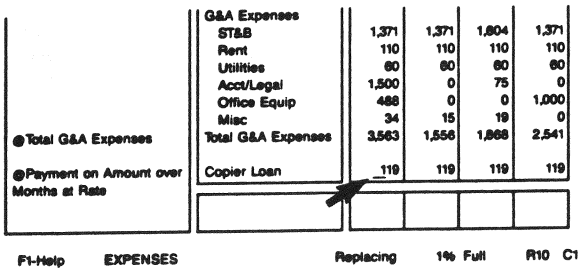
Targeting a Value

The Target function can be used with values related by a formula. Target works in both the values and the variables regions. To use the Target function, first move the cursor to the position in the worksheet where you are going to enter your target value — the end result that you wish to achieve. This location should be controlled by a formula. Then, press Shift-F7, PLAN's Target key, and PLAN instructs you to type your target value. Do so and press F10.

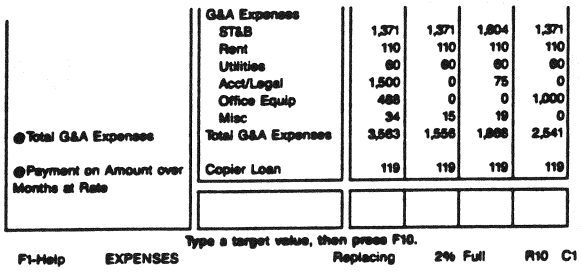
Next, PLAN instructs you to move to the value to solve for. This value should be in a row or column in which the values have been typed into the worksheet or in the variables region. It should *not* be in a row or column that is the result of a formula calculation. After moving to your selected location, press F10 again. The value needed to arrive at your target value appears at the cursor position.

If you use Target in a large worksheet, it could take PLAN quite a long time to find the target value. If you decide to cancel the Target function when targeting is in progress, press any key.

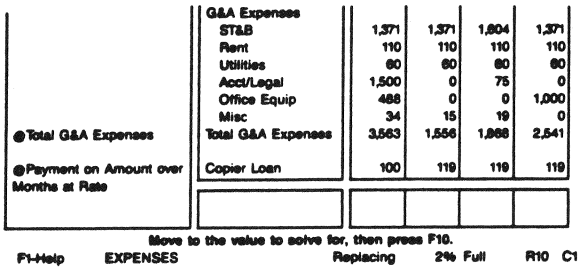
For example, suppose you decide you can only afford a monthly payment of $100 on a loan for a copier. You want to find out how much you can finance for this amount. Using the Expenses worksheet again, press Shift-F9 if the variables are not already on the screen, and move to the first column in the Copier Loan row:


G&A Expenses
ST&B 1,371 1,371 1,804 1,371
Rent 110 110 110 110
Utilities 60 60 60 60
Acct/Legal 1,500 0 75 0
Office Equip 488 0 0 1,000
Misc 34 15 19 0
@Total G&A Expenses
Total G&A Expenses 3,563 1,556 1,868 2,541
@Payment on Amount over Months at Rate
Copier Loan 119 119 119 119
F1-Help EXPENSES Replacing 1% Full R10 C1

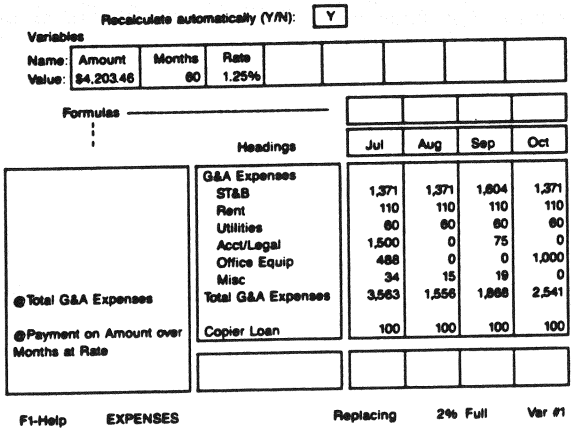
Then, press Shift-F7. The following message appears:


G&A Expenses
ST&B 1,371 1,371 1,804 1,371
Rent 110 110 110 110
Utilities 60 60 60 60
Acct/Legal 1,500 0 75 0
Office Equip 488 0 0 1,000
Misc 34 15 19 0
Total G&A Expenses 3,563 1,556 1,868 2,541
Copier Loan 119 119 119 119
Total G&A Expenses
Payment on Amount over Months at Rate
Type a target value, then press F10.
F1-Help EXPENSES Replacing 2% Full R10 C1

Type **100** as your target value and press F10. Another message appears:


G&A Expenses
ST&B 1,371 1,371 1,804 1,371
Rent 110 110 110 110
Utilities 60 60 60 60
Acct/Legal 1,500 0 75 0
Office Equip 488 0 0 1,000
Misc 34 15 19 0
Total G&A Expenses 3,563 1,556 1,868 2,541
Copier Loan 100 119 119 119
Total G&A Expenses
Payment on Amount over Months at Rate
Move to the value to solve for, then press F10.
F1-Help EXPENSES Replacing 2% Full R10 C1

Move the cursor to the value portion of the Amount variable (5000). Now press F10 again, and the loan amount that corresponds to the targeted payment amount appears:


Recalculate automatically (Y/N): Y
Variables
Name: Amount Months Rate
Value: $4,203.46 60 1.25%
Formulas
Headings
Jul Aug Sep Oct
G&A Expenses
ST&B 1,371 1,371 1,804 1,371
Rent 110 110 110 110
Utilities 60 60 60 60
Acct/Legal 1,500 0 75 0
Office Equip 488 0 0 1,000
Misc 34 15 19 0
@Total G&A Expenses Total G&A Expenses 3,563 1,556 1,868 2,541
@Payment on Amount over Months at Rate Copier Loan 100 100 100 100
F1-Help EXPENSES Replacing 2% Full Var #1

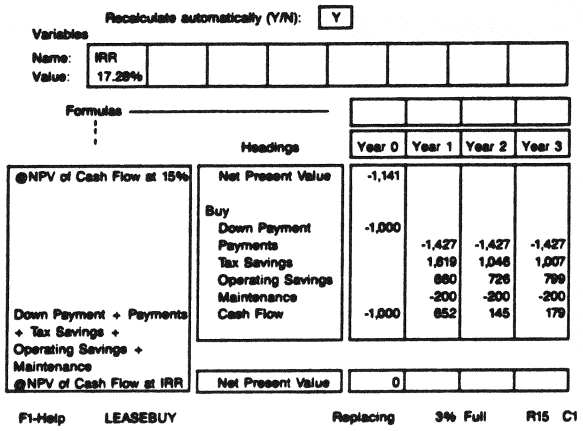
Using Target to Find Internal Rate of Return

Internal rate of return is the discount rate that causes the net present value of a stream of cash outflows and inflows to be equal to zero. To calculate an internal rate of return with PLAN, use the Target function with the @NPV keyword. When you type the keyword phrase (@NPV of "row or column heading" at "i"%), do not type a number for the interest rate (i), but refer to a variable instead. For instance, type the following:

@NPV of "row or column heading" **at IRR**

(IRR is the variable.) Move the cursor to the first column of the net present value row, press Shift-F7, the Target key, and type 0 as your target value. Press F10, and PLAN instructs you to move to the value to solve for. Move to the value portion of the IRR variable and press F10. The answer is the internal rate of return.

For instance, here is how you could adjust the example used earlier in this chapter for net present value to calculate an internal rate of return:



Note: This calculation could take quite some time. To interrupt it, press any key.

Summary

- PLAN's financial keywords are @NPV, @FV, and @Payment.
- Variables consist of a name and a value. Use a variable name in a formula, and PLAN uses the variable value in its calculation.
- Use the Target function to find a value that will allow you to achieve a targeted value.
- Use the Target function with the keyword @NPV to calculate an internal rate of return.

8: changing the appearance of a worksheet

PLAN provides a number of ways in which you can change the appearance of a worksheet after you have created it. For instance, you can create views in order to work with just those rows and columns that you need at any one time. You can also display values differently from the way you entered them — in a way that is more meaningful to you. For example, you might want values that represent money displayed with a dollar sign and only two digits after the decimal point.

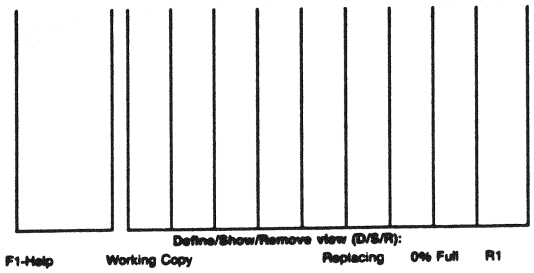
This chapter explains how to define and use views and format the values in the worksheet. It also explains how to set a minimum column width and add horizontal lines across the worksheet to visually group related rows.

Working with Views

If your worksheet is somewhat large, you may want to work with only a portion of it at one time. PLAN allows you to create "views," which are made up of selected rows and columns of a larger worksheet. A view is very useful for creating a smaller work area for data entry and editing. Views can also be useful for creating summaries of a large worksheet and for reviewing different combinations of rows and columns. You can create, save the definition of, and print (see Chapter 10) up to 4 views for each of your worksheets.

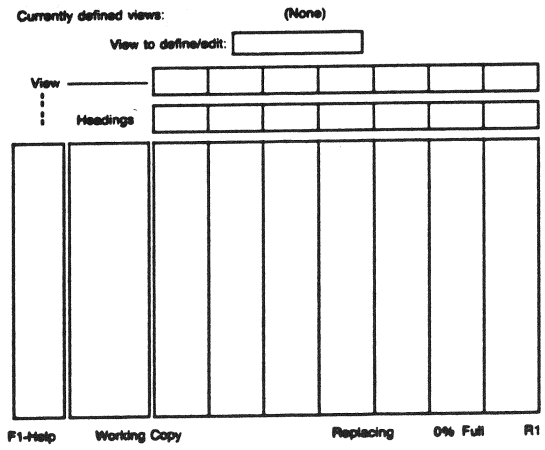
Beginning the View Function

To select the rows and columns to appear in a view, first press F8, PLAN's View key, with a worksheet on the screen. PLAN instructs you, in the message region at the bottom of the screen, to indicate whether you want to define, show, or remove a view:



Defining a View

When you press F8 and type D to define a view, PLAN displays special regions above and to the left of the headings:



At the top of the screen, PLAN lists any existing views and an item called View to Define/Edit. The cursor is at this item, so type a name for your view. The name can be up to 15 characters (including spaces). Then move the cursor into the worksheet. Now select the rows and columns you want to include in your view in *one* of the following ways:

- to *select only a few rows and/or columns*, type a plus sign (+) in the view regions to the left of each row and above each column to be included in the view.
- to *select all but a few rows and/or columns*, type a minus sign (–) in the view regions to the left of each row and above each column to be excluded from the view.

If you select some rows, but do not select any columns, the view will include all the columns in the worksheet. In the same way, if you select some columns, but no rows, you will see all the rows.

When you finish selecting the rows and columns for your view, press F8 again. PLAN saves the view definition and the view regions disappear from the screen.

For example, let's define a view that shows a summary of the actual sales figures from the Sales85 worksheet, which you created in Chapter 6. First, retrieve the worksheet from the diskette you stored it on.

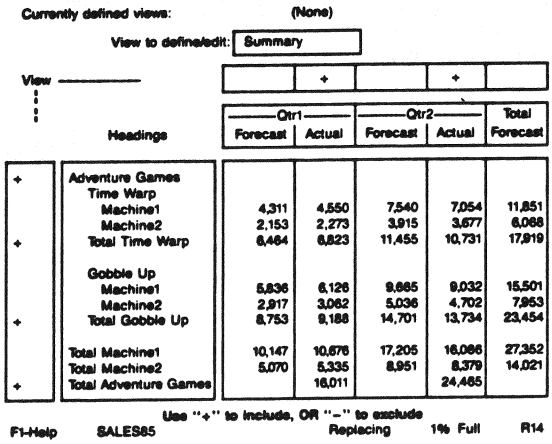
Now press F8, and type **D** when PLAN asks you to type D, S or R. When the view regions appear, type **Summary** in View to Define/Edit and press Tab to move the cursor into the view region above the columns. Type **+** in the view region above each Actual column (including Totals). Your screen should look like this:

Currently defined views: (None)

View to define/edit: Summary

View	+		+		+	
Headings	Actual	Qtr2 Forecast	Qtr2 Actual	Total Forecast	Total Actual	
Adventure Games						
Time Warp						
Machine1	4,550	7,540	7,054	11,851	11,084	
Machine2	2,273	3,915	3,677	6,068	5,950	
Total Time Warp	6,823	11,455	10,731	17,919	17,554	

Next, move into the view region next to the rows. Type + next to Adventure Games, Total Time Warp, Total Gobble Up, and Total Adventure Games. Now your screen should look like this:



Currently defined views: (None)

View to define/edit: Summary

	View		+		+	
			Qtr1		Qtr2	Total
	Headings	Forecast	Actual	Forecast	Actual	Forecast
+	Adventure Games					
	Time Warp					
	Machine1	4,311	4,550	7,540	7,054	11,851
	Machine2	2,153	2,273	3,915	3,677	6,068
+	Total Time Warp	6,464	6,823	11,455	10,731	17,919
	Gobble Up					
	Machine1	5,836	6,126	9,865	9,032	15,501
	Machine2	2,917	3,062	5,036	4,702	7,953
+	Total Gobble Up	8,753	9,188	14,701	13,734	23,454
	Total Machine1	10,147	10,676	17,205	16,086	27,352
	Total Machine2	5,070	5,335	8,951	8,379	14,021
+	Total Adventure Games		16,011		24,465	

Use "+" to include, OR "–" to exclude

F1-Help SALES85 Replacing 1% Full R14

Press F8 again to store the view definition and have the view regions disappear from the screen.

Showing a View

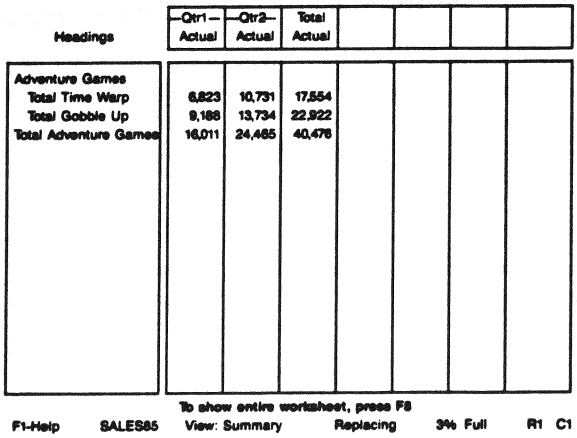
To store a view definition and immediately show the view, press F10 after completing the view definition. To show a previously-defined view, press F8 and type S after the message Define/Show/Remove View. PLAN lists the existing views, with the name of the most-recently defined or used view in the View to Show item. Press F10 to show that view, or type another view name and then press F10. The current worksheet is replaced by the selected view, with the following message in the message region:

To show entire worksheet, press F8

As this message directs, press F8 to return to the main worksheet.

When you display a view, you can analyze it, change formats, look at the formulas, enter new values, and change existing values. Any values you enter or change in the view are also entered or changed in the main worksheet. However, you *cannot* insert or delete a row or column nor change a heading or formula in a view.

Let's display the view that you created in the last section. Press F8 and type **S** after Define/Show/Remove View. Since Summary appears in the View to Show item, simply press F10 to show this view:


Headings
Qtr1 Actual
Qtr2 Actual
Total Actual
Adventure Games
Total Time Warp 6,823 10,731 17,554
Total Gobble Up 9,188 13,734 22,922
Total Adventure Games 16,011 24,465 40,476
To show entire worksheet, press F8
F1-Help SALES85 View: Summary Replacing 3% Full R1 C1

Press F8 again to return to the main Sales85 worksheet.

Editing a View Definition

To edit an existing view, press F8 and type D after Define/Show/Remove View. Type the name of the view you want to edit and move the cursor into the worksheet.

The pluses and/or minuses that you entered when you defined the view appear in the view regions. You can add and remove rows or columns from the view by erasing or adding pluses and minuses. Once you have made your desired changes, either press F10 to store the revised view definition and show the view, or press F8 again to store the view definition and return to the main worksheet.

Removing a View Definition

To remove the definition of a view, press F8 and type R when PLAN instructs you to type D, S or R. PLAN displays the list of currently defined views and an item called View to Remove. Type the name of the view you want to remove. Press F10, and PLAN removes the view. The list of views and View to Remove disappear from the screen, and PLAN displays a message indicating it has removed the view.

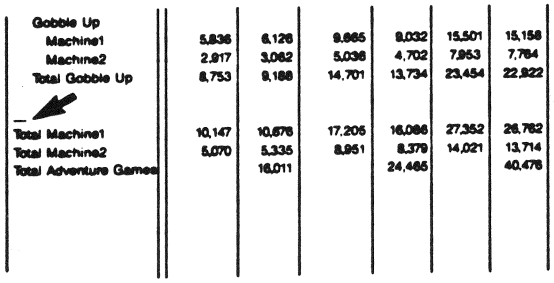
If you change your mind about removing a view before you press F10, press F8 to cancel the function and have the View to Remove item disappear.

Dividing Worksheet Sections

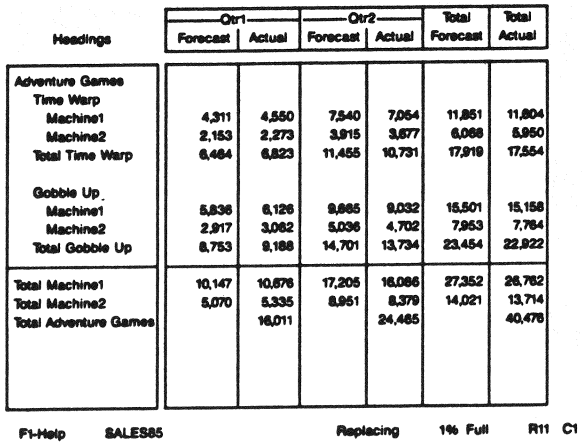
PLAN can help you easily divide your worksheet into sections with lines of dashes, equals signs, or underlines. To create a dividing line horizontally across a worksheet, type a -, =, or _ in the headings region of a blank row and press Tab. A line of the selected symbol automatically appears in this row of the worksheet.

To remove the dashes from the worksheet, move the cursor into the row headings region where the first dash appears and press F3, the Erase Entry key. Then, move the cursor to another row or column, and the line of dashes disappears.

For example, let's use a row of dashes to divide the Time Warp and Gobble Up row groups from the Total rows at the bottom of the Sales85 worksheet. Move the cursor to this position in the worksheet:



Now type a dash (-) and press Tab. Your worksheet should now look like this:



Headings	Qtr1 Forecast	Qtr1 Actual	Qtr2 Forecast	Qtr2 Actual	Total Forecast	Total Actual
Adventure Games						
Time Warp						
Machine1	4,311	4,550	7,540	7,054	11,851	11,604
Machine2	2,153	2,273	3,915	3,677	6,068	5,950
Total Time Warp	6,464	6,823	11,455	10,731	17,919	17,554
Gobble Up						
Machine1	5,836	6,126	9,865	9,032	15,501	15,158
Machine2	2,917	3,062	5,036	4,702	7,953	7,764
Total Gobble Up	8,753	9,188	14,701	13,734	23,454	22,922
Total Machine1	10,147	10,676	17,205	16,086	27,352	26,762
Total Machine2	5,070	5,335	8,951	8,379	14,021	13,714
Total Adventure Games		16,011		24,465		40,476

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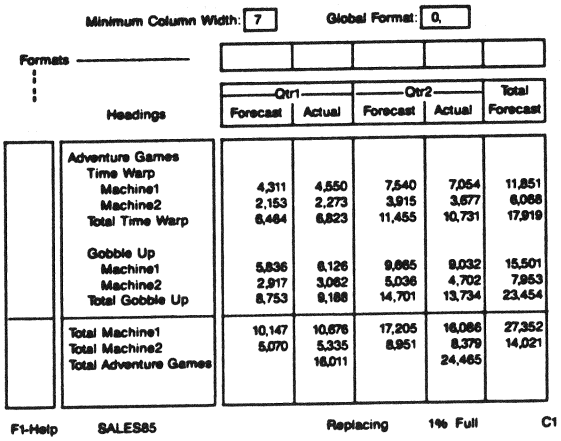
Formatting the Worksheet

You can format your worksheet so that no column is ever narrower than a size you specify and you can determine how values should look when you display or print them. You control these two aspects of the worksheet's appearance by using the Format key, Shift-F8.

When you press Shift-F8, four new areas appear on the screen. Two of these, Minimum Column Width and Global Format, appear at the top of the screen, outside the worksheet:



The Minimum Column Width determines the smallest size to which any column ever shrinks, and the Global Format determines how PLAN displays and prints all the values in the worksheet. You can enter these areas from the worksheet by using the up-arrow key. Use Tab to move from the Minimum Column Width to the Global Format and Shift-Tab to move back again. Also use Tab (or the down-arrow key) to return to the worksheet.

The other two regions appear at the top and left side of the worksheet, next to the headings regions. They are the format regions for individual rows and columns of the worksheet. You can supersede the global format instruction by entering special instructions for any row or column in these two regions.

Changing the Minimum Column Width

The actual width of a column is determined either by the setting of the Minimum Column Width item or by the widest entry in the column (heading or value). When you first select Design/Edit, each column contains 7 spaces, the default value for the Minimum Column Width item.

To change the default value, first press Shift-F8, then move the cursor to the Minimum Column Width item. Type over the current default using any number from 3 to 25.

Formatting Values

When you format a value, you determine how PLAN displays it in the worksheet. Create formatting instructions using the following symbols:

,	display numbers with commas
$	display numbers with a dollar sign to the left
%	display numbers with a percent sign to the right, and divide by 100 when using the numbers in a formula
n	round numbers to n decimal places (n = 0 through 7)

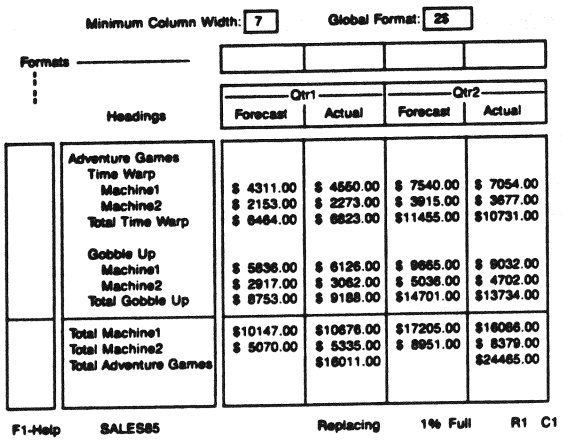
Changing the Global Format

The default value for the Global Format is a zero and a comma (0,), which causes PLAN to display all values in the worksheet as whole numbers with properly-placed commas. To change the global format, press Shift-F8 and move the cursor to the Global Format item. Type over the default value using symbols from the previous list. You can type up to three characters (2 symbols and a number) in any order.

The following list shows some example format instructions and illustrates how PLAN would display the number 1000.5 according to each instruction:

Format Instruction	1000.5 is displayed as:	Comments
0,$	$1,001	PLAN adds a dollar sign and a comma and rounds the value to the nearest whole number.
$2	$1000.50	PLAN adds a dollar sign and displays the number with two decimal places.
0%	1001%	PLAN adds a percent sign and rounds the value to the nearest whole number.
2%	1001.50%	PLAN adds a percent sign and displays the number with two decimal places.
,5	1,000.50000	PLAN adds a comma and displays the number with 5 decimal places.

For example, let's change the global format for the Sales85 worksheet. First, press Shift-F8. Then move the cursor to Global Format and type **2$** over the default Global Format. Press Enter and your worksheet should now look like this:



Changing the Format for Individual Rows and Columns

To format an individual row or column differently from the global format, move the cursor into the format region above the selected column or to the left of the selected row. Choosing from the same symbols that you use for the global format (, $ % 0-7), type a format instruction for the row or column. You can type up to three characters, in any order.

Individual format instructions completely override the Global Format instruction. Consequently, individual format instructions must contain every symbol that you want PLAN to use to format the individual row or column, even if the symbol is repeated in the Global Format item.

For example, suppose you want to see a dollar sign in only the first row of the Sales85 worksheet. First, change the Global Format to **2,**. Then move into the row format region to the left of the first Machine1 row, type **2,$**, and press Enter. Your worksheet should look like this:

Minimum Column Width: 7 Global Format: 2.

Formats	Headings	Qtr1 Forecast	Qtr1 Actual	Qtr2 Forecast	Qtr2 Actual
2,$	Adventure Games				
	Time Warp				
	Machine1	$ 4,311.00	$ 4,550.00	$ 7,540.00	$ 7,054.00
	Machine2	2,153.00	2,273.00	3,915.00	3,677.00
	Total Time Warp	6,464.00	6,823.00	11,455.00	10,731.00
	Gobble Up				
	Machine1	5,836.00	6,126.00	9,665.00	9,032.00

Now press Shift-F8 again to save the format instructions and have the format regions disappear from the screen.

Entering Percentages and Using the % Format

When you use the % format symbol, PLAN stores any number you enter exactly as you type it, but displays it with a percent (%) sign. If you use a number controlled by the % format in a formula, PLAN divides the number by 100 before performing the calculation indicated by the formula. If, for instance, you type the number 12 into a row controlled by the % format, PLAN stores the number as 12 and displays it as 12%. If you then use this row in a formula, PLAN divides the number by 100, thus using .12 in the calculation.

Unless you include the % format symbol, PLAN treats a number that you might think of as a percentage just like any other number in the worksheet. If you type the number 12%, PLAN ignores the percent sign and stores and displays the number as 12. If you type the number .12, PLAN stores and displays the number as .12.

Displaying Multiple Decimal Places

PLAN stores up to 14 digits (including decimal places) for every value entered in a worksheet. The number of decimal places stored for each value can vary, depending on how large the whole number is. The number of decimal places PLAN *displays* depends on the number (from 0 to 7) in the Global Format or individual row or column format.

If you request that PLAN display more decimal places than it has stored for a value, PLAN displays the decimal places it has stored and fills in the additional places required by the format instruction with zeros. Suppose, for instance, you format a row to display 7 decimal places, and one of the values in that row is 3,146.25. PLAN displays it as 3,146.2500000.

Summary

- Views are made up of selected rows and columns of a larger worksheet.
- You can create and save up to 4 view definitions per worksheet.
- Use + or – to select rows and columns for a view.
- Values entered or changed in a view are also entered or changed in the main worksheet.
- The Minimum Column Width (a number from 3 to 25) determines the smallest width any column ever shrinks to.
- You can divide your worksheet into sections with dashes, equals signs, or underlines.
- The Global Format controls the appearance of all the values in the worksheet.
- You can supersede the global format by entering format instructions in the row and column format regions.

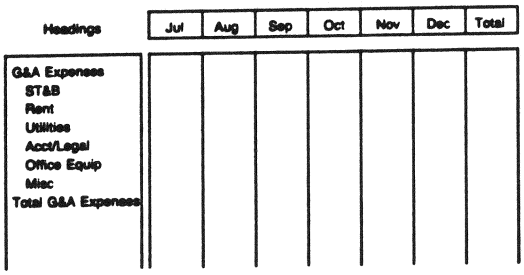
9: getting data from a PFS file

The Get PFS:FILE Data option of the Get function allows you to retrieve data stored in a file created with PFS:FILE and place it in a PLAN worksheet. This chapter explains different ways of using this option.

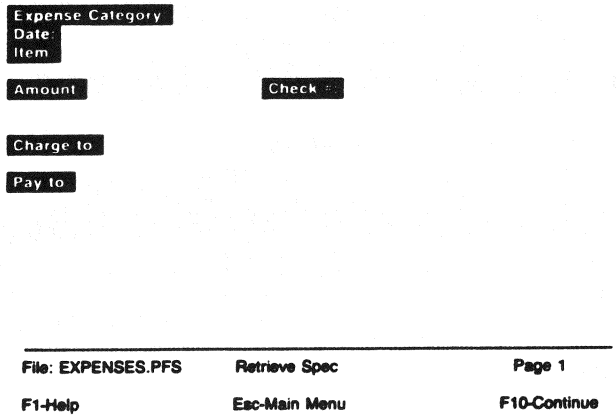
Selecting the Get PFS:FILE Data Option

To copy data from a PFS file into a worksheet, first make sure the worksheet is in the working copy and the diskette containing the PFS file is in drive B. Then, select the Get function from the PLAN Main Menu. When the Get Menu appears, type a 3 in Selection, enter the name of the PFS file in Directory or File Name (including the directory name, if necessary), and press Enter. A retrieve spec form from the PFS file appears on the screen.

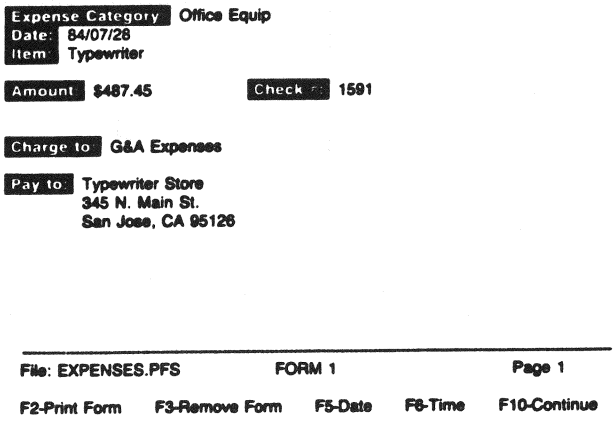
For example, let's retrieve data from a PFS file into the Expenses worksheet. The headings for this worksheet are stored on the PLAN program diskette under the name G&A. Retrieve the worksheet headings at this time. Your screen should look like this:



Now press Esc to return to the Main Menu again. This time select the Get function, and when the Get Menu appears on the screen, type **3** in Selection. Move the cursor to Directory or File Name and type **A:Expenses.pfs**. Press Enter and the retrieve spec form from the PFS file named Expenses.pfs appears on the screen:



The Expenses.pfs file contains individual records for G&A Expenses, Product Costs, and Marketing Expenses. A filled-in form looks like this:

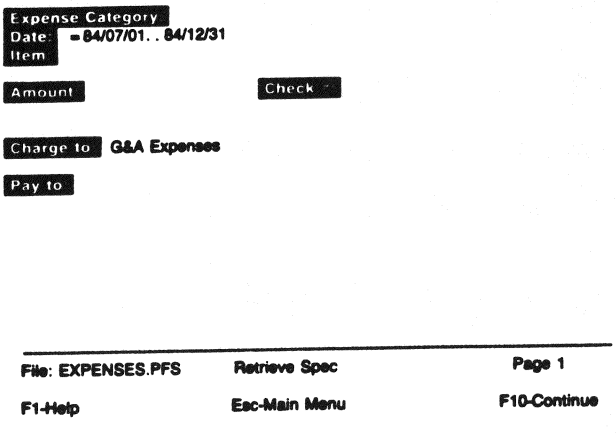


Choosing the Forms

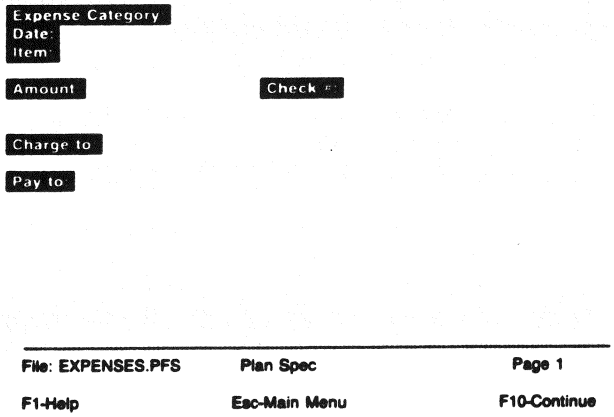
Fill in the items on the retrieve spec form to tell PLAN which forms in the PFS file to copy data from. Use the same retrieve specifications that you use when working with PFS:FILE. (See the PFS:FILE manual if you need an explanation of retrieve specifications.)

After you complete your retrieve specifications, press F10. If you want to read data from all the forms in the file, press F10 without entering anything in the retrieve spec form.

For example, let's use retrieve specifications to tell PLAN to copy data from all forms containing purchases charged to G&A Expenses in the first half of FY1985. Press Tab to move the cursor to the Date item and type **=84/07/01..84/12/31**. Then move to the Charge To item and type **G&A Expenses**. It should look like this:



Press F10, and the plan spec form appears:



Organizing the Data into Rows and Columns

You use the plan spec form to tell PLAN where to find the worksheet row headings, column headings, and values in the PFS file. You also use this form to tell PLAN how to match dates and how to use PFS file data with worksheet groups.

Designating Items as Rows and Columns

Use the plan specifications R (for row), C (for column), and V (for value) to tell PLAN how you want to organize the data from the PFS file into the rows and columns of the worksheet. How you use these specifications depends on the structure of your PFS file. Ask yourself these questions:

- Where do the row headings come from?
- Where do the column headings come from?
- Where do the values come from and does each form in the PFS file supply one worksheet value or multiple values?

Your answers should tell you where to put your R, C, and V.

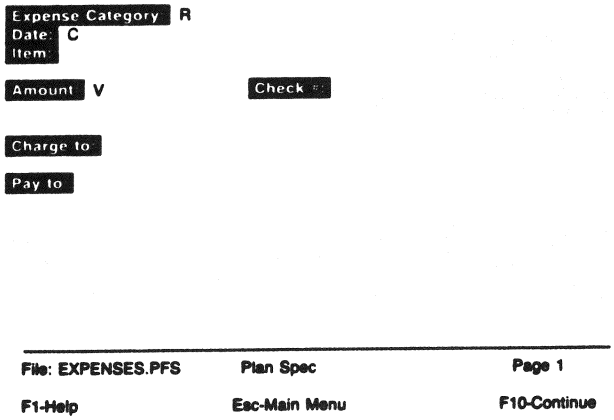
Using R, C, and V Separately

Use R, C, and V separately when each form in the PFS file supplies only one worksheet value, and different items on the form supply the row headings, column headings and values. To use R, C, and V separately:

- enter R in the item that supplies the row headings
- enter C in the item that supplies the column headings
- enter V in the item that supplies the values

When R and C are entered in items, PLAN compares the data in those items on each PFS form with the row and column headings in the worksheet. When PLAN finds a match, it adds the designated value into the worksheet. If there is no match, PLAN ignores the form.

For example, the row headings in our Expenses worksheet match data in the Expense Category item in the Expense.pfs file, so type **R** after Expense Category on the plan spec form. The column headings in the Expenses worksheet are dates, so type **C** after Date on the plan spec. The values to be copied into the Expenses worksheet are stored in the Amount item in the PFS file, so type **V** after Amount on the plan spec. It should look like this:



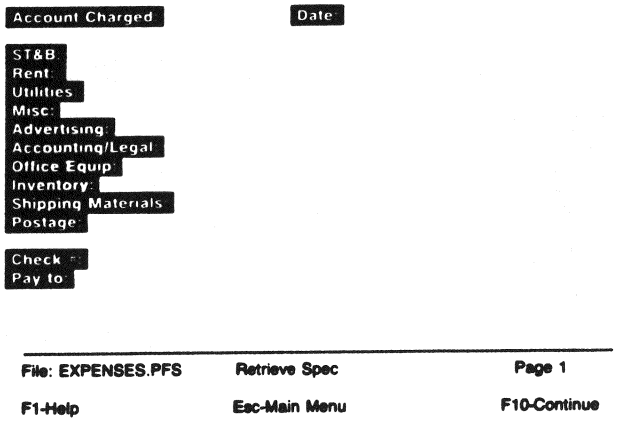
Using V with R or C

Combine V with R or C when each form in the PFS file supplies multiple worksheet values. When each form supplies multiple values, the items supplying the values should have item *names* that match either the row or column headings in the PLAN worksheet. (If the row or column headings don't match, see the next section.) To combine V with R or C, use one of the following:

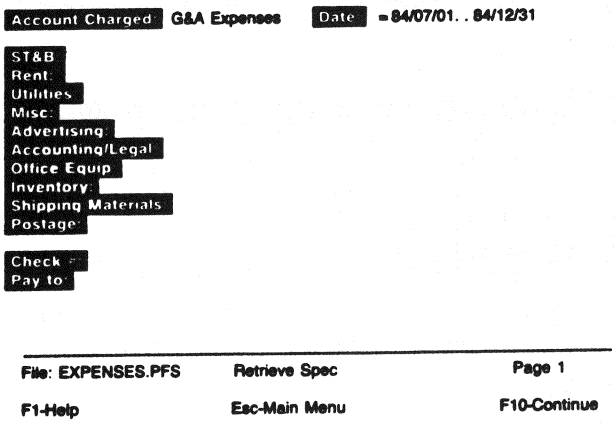
- enter R next to the item that supplies the row headings and CV next to the items that supply the column headings and the values.
- enter C next to the item that supplies the column headings and RV next to the items that supply the row headings and the values.

Note that you can either use V alone in one item in the plan spec or use it with R or C, but you cannot do both.

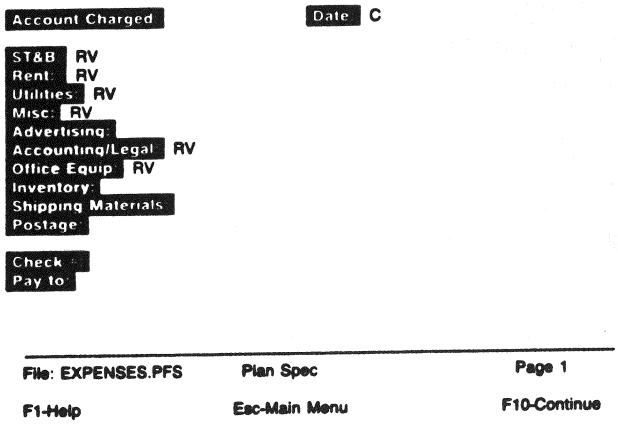
Suppose, for instance, the PFS file used to create the Expenses worksheet looked like this:



With a PFS file that looked like this, you would tell PLAN to copy data from all forms containing purchases charged to G&A Expenses in the first half of FY1985 by filling in the retrieve spec form like this:



Since you know which items are G&A type expenses, you collect that data by filling in the plan spec form like this:

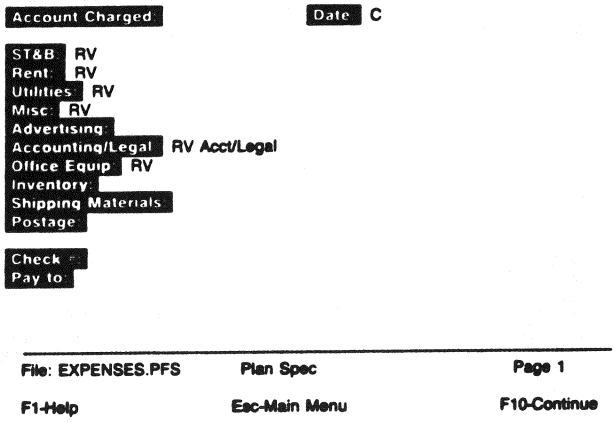


On the plan spec, the C in the Date item tells PLAN to match the data in this item with the date-oriented column headings in the G&A worksheet. The RVs in the other items tell PLAN to match these item names with the row headings and use the values in the items as the values for the corresponding rows.

When Item Names and Worksheet Headings Don't Match

Sometimes it may not be possible or desirable that a heading in a worksheet match an item name in a PFS file. Perhaps, for instance, an item name contains more than 25 characters, the maximum number allowed in a heading. When the item name and the worksheet heading don't match, type the heading after the appropriate plan specification (RV or CV) in the plan spec form.

For instance, the alternate Expenses.pfs form shown in the previous section has Accounting/Legal as an item name, while the Expenses worksheet has Acct/Legal as a row heading. To retrieve values from the Accounting/Legal item into the Acct/Legal row, you would enter Acct/Legal after the RV in the Accounting/Legal item in the plan spec:



Telling PLAN How to Match Dates

PLAN expects to finds dates in a PFS file in a number format (e.g., 84/06 or 84/06/21). If the dates in your PFS file exactly match the dates in your worksheet, simply put R or C in the item that supplies the date in the plan spec. However, if you tell PLAN to match PFS file dates to *date-oriented* worksheet headings (e.g., January), you must also tell PLAN what the dates look like in the PFS file and which portion of the dates to match to the worksheet headings. If your dates are divided into three parts and look like this,

84/01/30

type an instruction containing one of the following letters and two dashes: Y (for year), M (for month), or D (for day). The date instruction should follow the plan specification (R or C) on the plan spec. The following chart shows how it works:

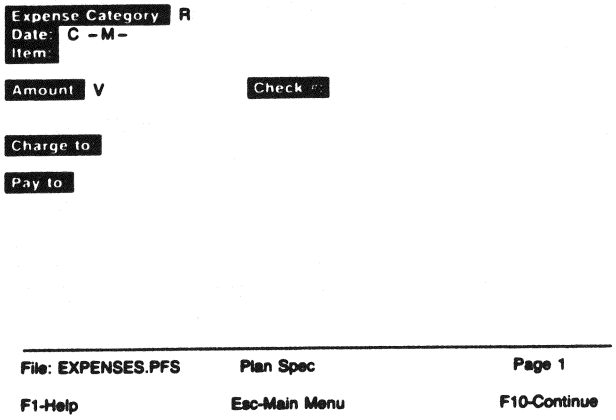
Instruction	What It Means
Y--	Match the first part of the date, which is the year, with the worksheet heading.
-M-	Match the middle part of the date, which is the month, with the worksheet heading.
--D	Match the last part of the date, which is the day, with the worksheet heading.

The letter (Y, M, or D) and the dashes can be in any order, but the order should correspond to the dates in the PFS file. If your dates are divided into only two parts, use Y, M, or D with one dash.

PLAN will read dates in a PFS file correctly no matter what order they are stored in, as long as all the dates are stored in the same order. If you have dates stored in a PFS file in a month, day, year (mm/dd/yy) format, for instance, and want to retrieve data into a worksheet with years as column headings, your date instruction would be C --Y.

PLAN combines the data in the PFS file according to your date instruction. This means that when you tell PLAN to match the month portion of the PFS date with column headings that are the names of months, PLAN adds the values from the PFS file by month and puts the resulting value in the correct column. In matching the month portion of a date with a worksheet heading, PLAN matches the number 01 with either 01, Jan, JAN, January, or JANUARY, and so on.

For example, for the Expenses worksheet, you want PLAN to combine the G&A expenses for each month and place the total in the worksheet. The dates in the Expenses.pfs file are in the year, month, day (yy/mm/dd) format recommended by PFS:FILE, so type **-M-** after the C in the Date item on your plan spec form. It should look like this:



Press F10, and PLAN retrieves the specified data from the PFS file and places it into its appropriate place in the worksheet.

Headings	Jul	Aug	Sep	Oct	Nov	Dec	Total
G&A Expenses							
ST&B	1,371	1,371	1,604	1,371	1,371	1,984	9,052
Rent	110	110	110	110	110	110	660
Utilities	60	60	60	60	60	60	360
Acct/Legal	1,500		75		150		1,725
Office Equip	488			1,000		300	1,788
Misc	34	15	19		63	148	279
Total G&A Expenses	3,563	1,556	1,868	2,541	1,754	2,582	13,864

Using PFS File Data with Worksheet Groups

When you get data from a PFS file, the item names or the data in the items can be group headings or group members in the worksheet. The following sections describe the instructions to use in the plan spec to tell PLAN how to match such data with the worksheet headings.

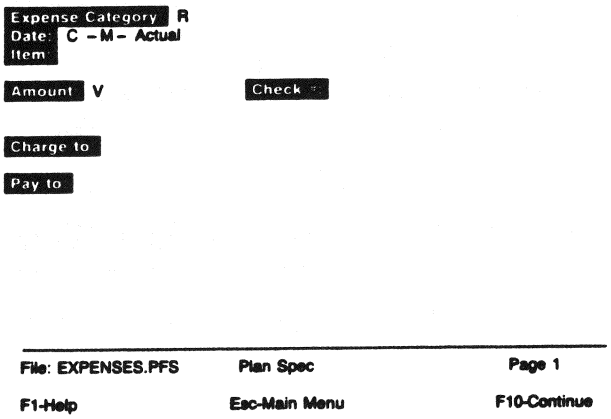
Date-oriented Headings as Group Headings

When date-oriented worksheet headings are group headings, you need to tell PLAN which member of the group is to receive PFS file data. To do this, enter the heading of the group member *after* the date instruction in the plan spec, leaving a space between the date instruction and the worksheet heading.

Suppose, for instance, the Expenses worksheet looked like this:

	Jul		Aug		Sep	
Headings	Forecast	Actual	Forecast	Actual	Forecast	Actual
G&A Expenses						
ST&B						
Rent						
Utilities						
Acct/Legal						
Office Equip						
Misc						
Total G&A Expenses						

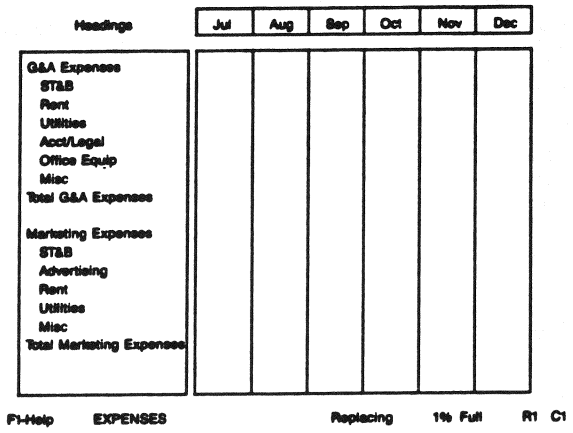
To retrieve the G&A expenses from the Expenses.pfs file into this worksheet, the plan spec would have to tell PLAN to put the values, which are actual expenditures, in the Actual column of each month group. It would look like this:



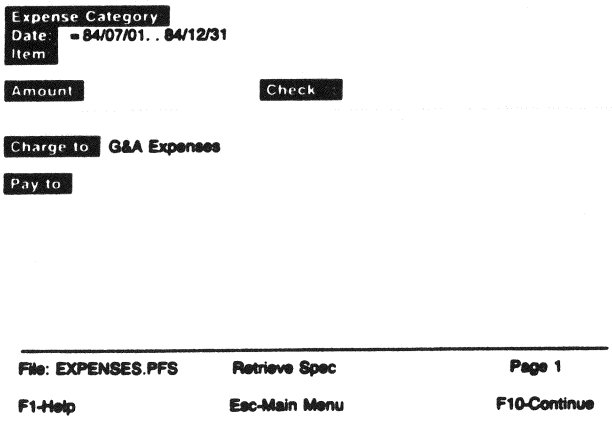
When Data Appears in Multiple Groups

When the PFS item data matches row or column headings used in multiple groups, you need to tell PLAN into which group the values should go. To do this, type the group heading followed by a plus sign after the R or C in the plan spec.

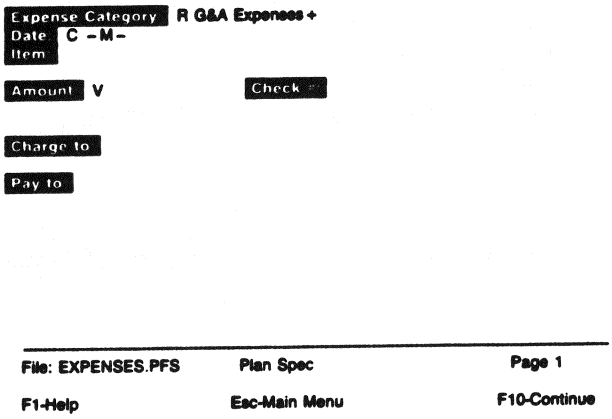
Suppose, for instance, the Expenses worksheet looked like this:



To retrieve data from the Expenses.pfs file into only the G&A Expenses group, you would fill in the retrieve spec like this:



Since the Expense Category item in the Expenses.pfs file contains the row headings used in both the G&A Expenses and Marketing Expenses groups, you would fill in the plan spec like this:

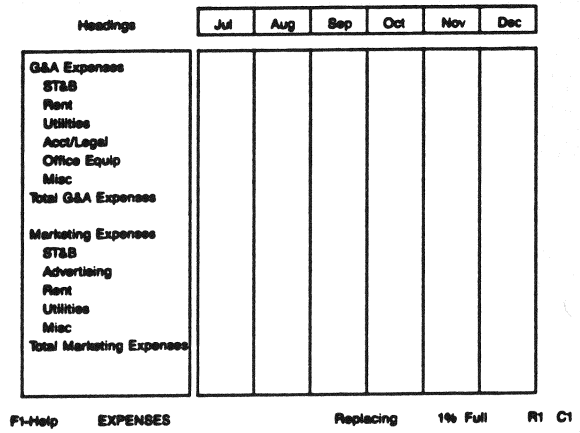


The R in Expense Category tells PLAN to match the data in this item with the row headings in the worksheet. The phrase G&A Expenses+ after the R tells PLAN that the row headings in the worksheet are members of a group and the group heading is G&A Expenses.

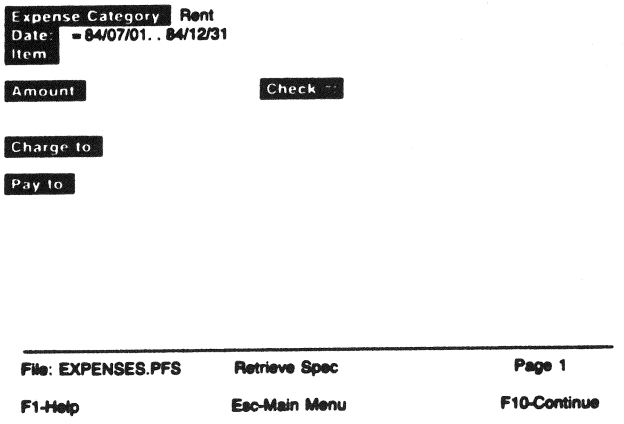
When Data Appears as Group Headings

When the data in a PFS file item matches group headings in the worksheet, you need to tell PLAN which member within the group is to receive the values. To do this, type the heading of the group member after the plan specification (R or C) on the plan spec form.

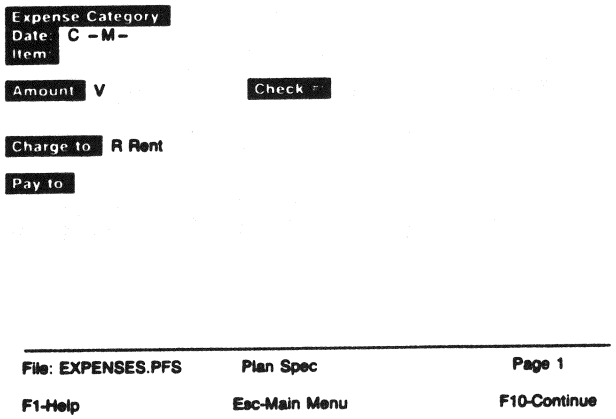
Suppose, for instance, you wanted to retrieve only the Rent expenses from the Expenses.pfs file into the Expenses worksheet that looks like this:



The Expense Category item in the Expenses.pfs file contains all row headings in this worksheet except the group headings, which are in the Charge To item. To tell PLAN to retrieve data only from those forms with Rent in the Expense Category item, the retrieve spec would look like this:



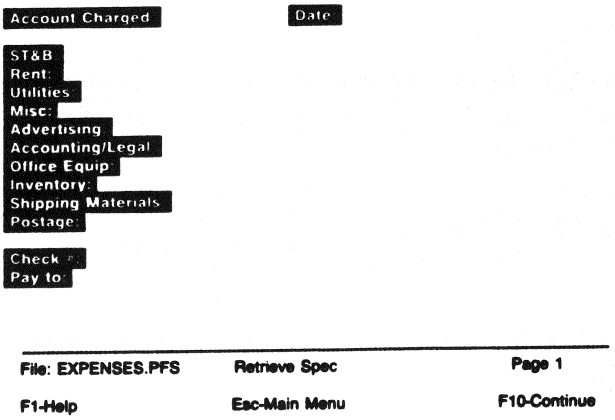
Since only the Rent values should go into the worksheet and not the values for all the data in the Expense Category item, R should be placed in the Charge To item with the word Rent after it in the plan spec. It would look like this:



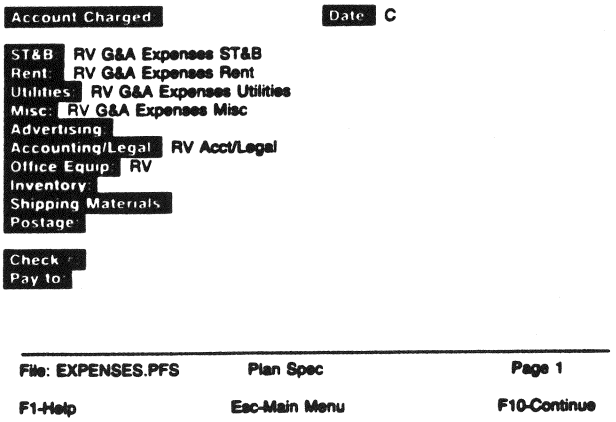
An Item Name in Multiple Groups

When the PFS file item *name* matches multiple rows or columns in the worksheet, type the group heading and the row or column heading after the RV or CV in the plan spec.

Suppose, for instance, you wanted to retrieve only the G&A Expenses from the PFS file that looks like this:



Also suppose you wanted to retrieve the G&A Expenses into the Expenses worksheet containing both the G&A Expenses and the Marketing Expenses groups. You would type G&A Expenses in the Account Charged item on the retrieve spec and fill in the plan spec as follows:



For each item name that appears in both the G&A Expenses and the Marketing Expenses groups in the worksheet, you would enter the group heading after the plan specification (RV) and then repeat the row heading after the group heading.

Summary

- Use the Get PFS File Data option of the Get function to retrieve data from a PFS file into a PLAN worksheet.
- Use PFS:FILE's retrieve specifications to tell PLAN from which PFS forms to retrieve data.
- Use the letters R, C, and V to tell PLAN which items in the PFS file contain the worksheet row headings, column headings, and values.
- Use Y, M, or D with dashes to tell PLAN the order of dates in the PFS file.
- It is not necessary that item names in the PFS file match the headings in the worksheet.

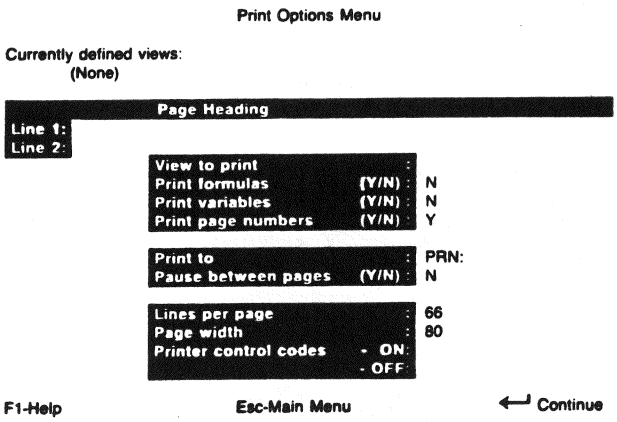
10: printing a worksheet

This chapter explains how to use the Print function to produce a paper copy of the worksheet in the working copy—the entire worksheet, part of the worksheet, the formulas, and/or any existing variables. PLAN comes set up to work with a parallel printer, but will print worksheets to any printer that is properly connected to your computer system. (Use the PFS SETUP program described in Appendix B to modify the PLAN program diskette to work with a serial printer.)

This chapter also explains how to use the Print function to print to a disk, creating a text file that can be used by PFS:WRITE to place a copy of your worksheet in a WRITE document.

Selecting the Print Function

To begin the Print function, return to the Main Menu (press Esc, if necessary), type 5 in Selection, and press Enter. The Print Options Menu appears on the screen:



If you want to use the default values shown for these options, press Enter without making any changes.

To change any item, press Tab to move the cursor to that item and type over the default value. Use Shift-Tab to move backwards through the items. When you have made all the desired changes, press Enter.

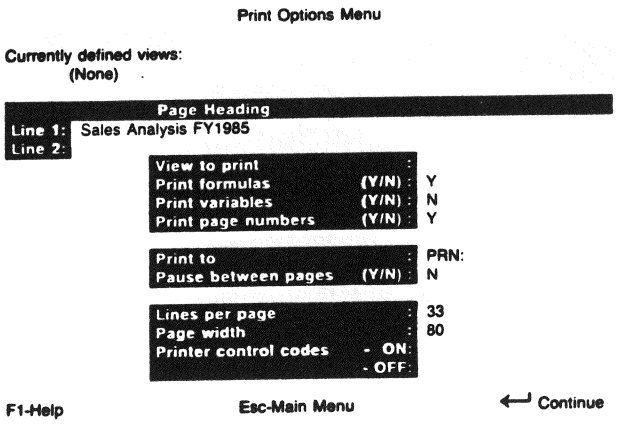
Printing a PLAN Worksheet

Let's print a copy of the Sales85 worksheet. First, retrieve a copy of the worksheet from the diskette on which you stored it. Then return to the Main Menu, type **5** in Selection, and press Enter. The Print Options Menu appears.

The cursor is positioned in the Page Heading Line 1 item, so enter a page heading by typing

Sales Analysis FY1985

on the first line. Next, move to the Print Formulas item and type **Y** to have PLAN print your formulas. Now, press Tab to move to the Lines Per Page item and type **33** over the number 66. If you are printing with a parallel printer such as an Epson MX-80 using standard-size printer paper, you can print the worksheet without any additional changes to this menu. Your screen should look like this:

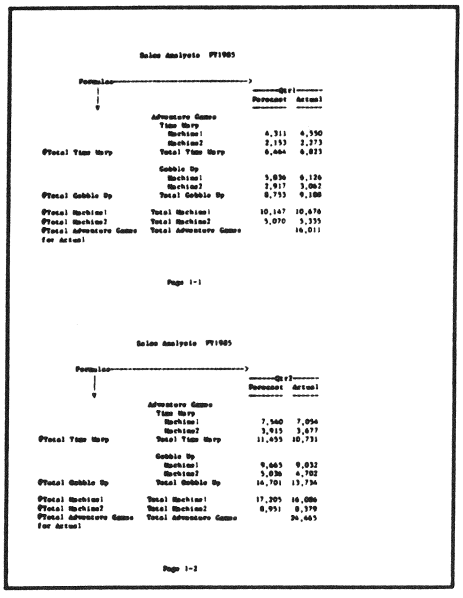


Press Enter, and PLAN asks you to get your printer ready:

Position the Paper in the printer

Press ↵ to continue

When your printer is loaded with paper and turned on, press Enter again, and PLAN prints your worksheet. It should look like this:



Sales Analysis FY1985

Formulas → Qtr1: Percent, Actual

	Percent	Actual
Adventure Games		
Time Warp		
Machine1	4,311	4,350
Machine2	2,153	2,273
@Total Time Warp — Total Time Warp	6,464	6,623
Gobble Up		
Machine1	5,836	6,126
Machine2	2,917	3,062
@Total Gobble Up — Total Gobble Up	8,753	9,188
@Total Machine1 — Total Machine1	10,147	10,476
@Total Machine2 — Total Machine2	5,070	5,335
@Total Adventure Games for Actual — Total Adventure Games		16,011

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Sales Analysis FY1985

Formulas → Qtr2: Percent, Actual

	Percent	Actual
Adventure Games		
Time Warp		
Machine1	7,560	7,056
Machine2	3,915	3,677
@Total Time Warp — Total Time Warp	11,455	10,731
Gobble Up		
Machine1	9,663	9,032
Machine2	5,038	4,702
@Total Gobble Up — Total Gobble Up	14,701	13,734
@Total Machine1 — Total Machine1	17,205	16,086
@Total Machine2 — Total Machine2	8,951	8,379
@Total Adventure Games for Actual — Total Adventure Games		24,465

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Sales Analysis FY1985

Formulas → @Total Percent: Total Percent

	Total Percent
Adventure Games	
Time Warp	
Machine1	11,851
Machine2	6,068
@Total Time Warp — Total Time Warp	17,919
Gobble Up	
Machine1	15,501
Machine2	7,953
@Total Gobble Up — Total Gobble Up	23,454
@Total Machine1 — Total Machine1	27,352
@Total Machine2 — Total Machine2	14,021
@Total Adventure Games for Actual — Total Adventure Games	

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Sales Analysis FY1985

Formulas → @Total Actual: Total Actual

	Total Actual
Adventure Games	
Time Warp	
Machine1	11,406
Machine2	5,950
@Total Time Warp — Total Time Warp	17,356
Gobble Up	
Machine1	15,158
Machine2	7,764
@Total Gobble Up — Total Gobble Up	22,922
@Total Machine1 — Total Machine1	26,762
@Total Machine2 — Total Machine2	13,716
@Total Adventure Games for Actual — Total Adventure Games	40,476

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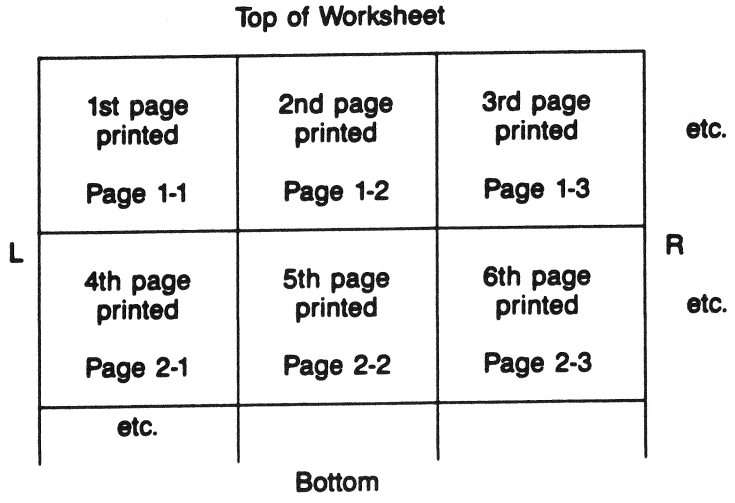
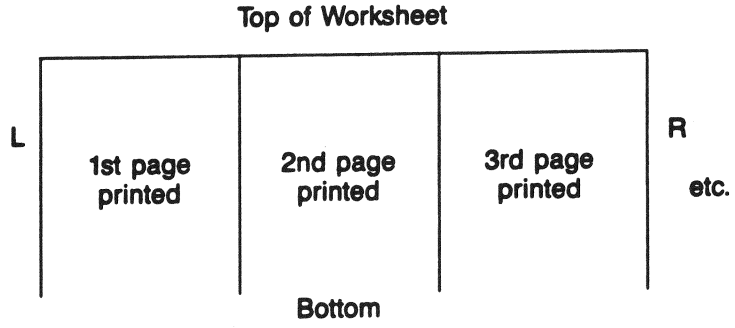
The Printing Sequence

Notice the order in which PLAN printed the pages of the Sales85 worksheet. If you are printing a large worksheet that will not fit on one sheet of paper, PLAN prints it in sections, according to the following diagram:



If you want to print all the rows without page breaks, set the Lines per Page item to 0. In this case, if the worksheet is too wide to fit on one sheet of paper, PLAN prints it in sections from left to right, like this:



Notice that PLAN prints the column headings at the top of each page of the worksheet, and the row headings at the left side of each page. Thus, each page of the worksheet can stand alone. The page numbers make the order of the pages immediately obvious.

A Closer Look at the Print Options

Whenever you start the PLAN program or clear the working copy, the print options default values are in effect. You can change as many items on the Print Options Menu as necessary (using Tab and Shift-Tab to move between items) by typing over the default values. Any changes that you make to these default values when printing a worksheet are stored with the worksheet, so you don't have to make the same changes each time you want to print that worksheet. The following sections explain when and how to modify the print options.

Titling a Worksheet

You can have PLAN print a page heading that is up to two lines long at the top of each page of a worksheet. Each line of the title can have 70 characters. PLAN centers the title in the top margin of each page of the worksheet.

Printing a View

If this item is blank (the default value), PLAN prints the entire worksheet. If you have defined one or more views for the worksheet, you can print a view by placing its name in the View to Print item. PLAN displays a list of views at the top of the Print Options Menu.

Printing Formulas

You can have PLAN print worksheet formulas by changing the default value for the Print Formulas item from N to Y. Formulas appear on the printed copy of the worksheet in the same locations that they occupy on the screen. PLAN prints the formulas on each page of the printed worksheet.

Printing Variables

You can also have PLAN print any variables created for use in a worksheet by changing the default value for the Print Variables item from N to Y. Variables appear at the top of each page of the printed worksheet.

Printing Page Numbers

PLAN automatically numbers the pages of your worksheet unless you indicate that it should not by changing the default value of Print Page Numbers from Y to N.

Printing to Different Printers

PLAN prints to any printer properly connected to your computer system. The default value, PRN:, in the Print To item assumes that you have a parallel printer. If you use a serial printer, use the SETUP program explained in Appendix B to modify the PLAN program diskette to work with your serial printer.

Printing as a Disk File

You can print a worksheet as a disk file by entering a directory and file name (such as A:Budget or B:Forecast) in the Print To item. PLAN prints the worksheet to the file on the disk, just as it would appear on paper. This feature converts your worksheet to an ASCII text file that you can access with PFS:WRITE and other word processors or transfer to another computer over a communications link using PFS:ACCESS.

Before printing to a disk file that you may want to append to a PFS:WRITE document, change the Page Width item to 78 so that PFS:WRITE can read the worksheet correctly. If you will be transferring the file with PFS:ACCESS, be sure the Page Width item is set to 80 or less.

Pausing between Pages

If you want to print on single sheet paper, change Pause between Pages to Y so that PLAN pauses after printing each page to allow you to insert a clean sheet of paper. When PLAN reaches the end of each page it displays the message:

> Put a new page in your printer

After changing the paper, press Enter to print the next page.

Choosing the Number of Lines per Page

The number in the Lines per Page item should correspond to the number of lines on your printer paper. If you are printing on standard 8-1/2 x 11 paper, the default value of 66 is correct for most printers. If you are using shorter or longer paper, you need to modify this value accordingly. PLAN automatically includes a top and bottom margin when printing a worksheet.

Choosing the Page Width

The number in the Page Width item indicates the number of characters that can be printed on one line, including a left and right margin automatically included by PLAN. If you are printing on standard 8-1/2 x 11 paper, the default page width of 80 is correct for most printers.

If you are using 8-1/2 x 11 paper and printing in compressed mode, set Page Width to 132. If you are using 11 x 14 paper and printing in compressed mode, set Page Width to 240. Do not enter a number larger than 240 in the Page Width item.

If you want to print your worksheet as a disk file to be used by PFS:WRITE, change the Page Width item to 78 so WRITE can read the worksheet correctly. If you want to print your worksheet as a disk file to be transferred to another computer via a communications link by PFS:ACCESS, be sure the Page Width item is set to 80 or less.

Sending Special Codes to Your Printer

Most printers allow you to print in a variety of print styles (or modes) by sending special codes to your printer. With PLAN, you send special printer codes by typing their decimal equivalent in the Printer Control Codes item. You can send codes to set a special mode for printing, and then send codes to turn that mode off after printing is done. (If you do not turn off the code, your printer continues to print in the special mode until you either send the proper code, or turn your printer off.)

For example, if you have an Epson MX-80 printer and want to print your worksheet in compressed mode (17 characters per inch) and then turn off compressed mode when printing is finished, fill in the Printer Control Codes item like this:

```
Printer Control Codes   - ON: 15
                        -OFF: 18
```

(Before printing a worksheet in compressed mode, be sure to change the Page Width item to 132 or 240.)

To set some modes, you need to send two characters. Both are decimal equivalents, and they are separated by a space. For example, if you have an Okidata printer and want to print in bold and then turn off bold when printing is finished, fill in the Printer Control Codes item like this:

Printer Control Codes – ON: 27 84
– OFF: 27 73

Control codes vary from printer to printer, so check your printer manual for the codes that turn special print modes on and off for your printer. If your manual lists these control codes as ASCII characters, remember to translate them to their decimal equivalents.

Stopping the Print Function

You can temporarily stop printing by pressing the space bar and then resume printing by pressing Enter. You can completely cancel the Print function at any time by pressing Esc. PLAN immediately stops sending to your printer and returns to the Main Menu.

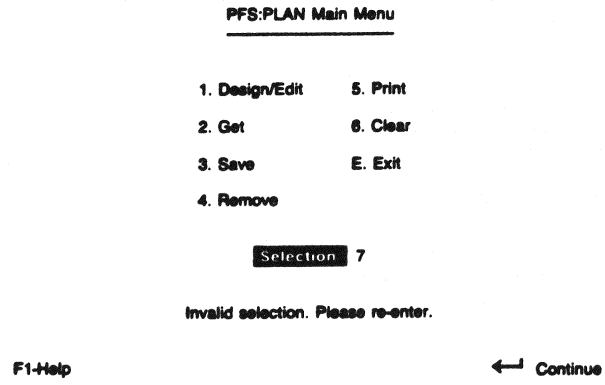
Summary

- Use the Print function to:
  - — produce a paper copy of the worksheet in the working copy
  - — print formulas and variables with a worksheet
  - — print a worksheet to a disk, creating a text file for use with PFS:WRITE or PFS:ACCESS
  - — print a view
- Changes made to the print options when printing a worksheet are stored with the worksheet.

a: messages

PLAN displays a message whenever it encounters an error condition. Certain errors are the result of mistakes you make as you use the program, while others are the result of physical limitations or problems with certain parts of your computer system.

Most of these messages appear in the message area at the bottom of the screen:



PLAN displays other messages on a separate screen:

PROBLEM

Not a PLAN worksheet

Press Esc to return to Main Menu

(See manual Appendix A)

If you encounter one of these messages, simply locate the message in the alphabetical list below and follow the instructions in the Explanation column. If the message is displayed on a separate screen, you can restart normal PLAN operation by pressing Esc, which returns you to the Main Menu.

Message	Explanation
*****	Asterisks in the values region indicate that PLAN cannot supply values for the row or column. Some possible causes are: ■ PLAN cannot evaluate the formula controlling the row or column. For example, the formula may contain a missing operator or an incorrect use of parentheses. You must correct the formula. ■ The numeric value for the row or column exceeds the maximum that PLAN can store for a value. If the row or column is controlled by a formula, check to make sure that the formula is correct.

Ambiguous heading in formula (at row xxx) (at column xxx)	Either you just typed a formula that contains an ambiguous heading or you made a change to the worksheet that created an ambiguous heading in a formula (PLAN displays the row or column number (xxx) of the formula that contains the ambiguous reference). Before PLAN can evaluate the formula, you must correct it or change a row or column heading to eliminate the ambiguity. Some possible causes of the error and corrective actions include: ■ Heading appears in more than one group. Correct the formula by preceding the heading with the group name. ■ Heading appears more than once in a group. Rename a heading so that there are no duplicate headings in the group. ■ Heading is a column group name. Correct the formula by using a column heading that is not a group name. If you were editing the worksheet, you can correct the formula by displaying the formulas regions (press F9). Then, move the cursor to the row or column that has the number shown in the error message. (PLAN displays the row and column number of the cursor's position in the lower right corner of the message region.)
Bad file name	You typed a file name that could not be recognized or you tried to refer to a device that does not exist in your system. Make sure the file name is typed correctly and that it contains only allowable characters (see your DOS manual). Also make sure the device name is typed correctly.
Both diskettes must have the write-protect tab removed.	Remove the write-protect tabs from the PLAN program diskette and the blank diskette.

Calculator does not work here	The Calculator (F4) works only in the values region and on variable values. It does not work on a value that is derived from a formula. Make sure that the cursor is positioned at a value and that the value is not derived from a formula. (To display the formulas regions, press F9.)
Cannot access file: *filename*	The SETUP program cannot find the indicated file on the diskette. Use the DOS DIR command to see if the file is on the diskette. If the file is missing, try your backup copy of the program diskette. If the file is present, there may be a physical problem with a disk drive, disk controller, diskette, or fixed disk. Some possible causes and corrective actions are: ■ Disk drive door open. Close the door. ■ Diskette inserted incorrectly. Remove the diskette, then re-insert it properly. ■ Malfunction. DO NOT USE THIS DISKETTE AGAIN. If I/O error persists, take the disk drive to your computer dealer for testing.
Cannot access program diskette	Check that the program diskette is in the default drive; for example, if the DOS prompt is A>, the program diskette should be in drive A.
Cannot access target drive	The drive or directory that you specified for installing the program cannot be found. Run the SETUP program again, being sure to enter the correct name for the hard disk (or directory). Or, you might have tried to install PLAN in a directory that has the maximum number of files on it. If you have some unneeded files, remove them, or install PLAN in a different directory. The disk or cable may have a physical problem. Contact your computer dealer for help.

Cannot change this in a view	You cannot change, insert or delete a heading, variable or formula in a view. To make the requested change, return to the main worksheet (press F8).
Cannot find file	PLAN cannot locate the file on the drive or directory. Type the correct file name, including the extension if it has one. If you need a list of files in the directory, enter just a drive name followed by a colon, such as B:, then press Enter.
Cannot find Help file	PLAN cannot locate the files containing Help information on the diskette. Make sure that the PLAN program diskette is in the drive. If it is, the Help files may have been deleted. If you backed up your PLAN program diskette, use the backup copy.
Cannot find PLAN	PLAN is not on the disk in the drive. Make sure that you have the PLAN diskette in the drive.
Cannot find printer information	The printer file is missing from the PLAN program disk. (It may have been deleted accidently.) If you backed up your PLAN program diskette, use the backup copy.
Cannot insert more column headings	The columns headings region can contain only 3 rows of column headings.
Cannot insert more columns	You have reached the maximum number of columns allowed (70) for a worksheet. Before you can insert more columns, you must make your worksheet smaller. If the worksheet has unneeded columns, delete them. Or, divide the worksheet into 2 smaller worksheets. First, save the current worksheet; then, create a new worksheet with only headings and transfer data to it using the Consolidate Worksheets option on the Get Menu. Finally, delete the rows and columns transferred to the new worksheet from the original worksheet.

Cannot insert more rows	You have reached the maximum number of rows allowed (255) for a worksheet. Before you can insert more rows, you must make your worksheet smaller. If the worksheet has unneeded rows, delete them. Or, divide the worksheet into 2 smaller worksheets. First, save the current worksheet; then, create a new worksheet with only headings and transfer data to it using the Consolidate Worksheets option on the Get Menu. Finally, delete the rows and columns transferred to the new worksheet from the original worksheet.
Cannot insert more variables	You have reached the maximum number of variables allowed (20) for a worksheet. If there are unneeded variables, delete them. Then, insert the variable.
Cannot load PLAN	PLAN cannot be loaded from the disk. This is most likely caused by a disk error. If you backed up your PLAN program diskette, use the backup copy.
Cannot print to the console	You cannot print a worksheet on the console. Enter the device name of your printer (such as PRN:) or a directory and file name.
Cannot type comments here	You cannot type a comment at the current cursor position. Type comments only when the cursor is in the values region.
Cannot type comments in a view	You cannot type a comment in a view. To type a comment, return to the main worksheet (press F8).

Change dashes in row headings region	After you have used a line of dashes, underlines, or equal signs to divide a worksheet, you cannot type over them or blank them out in the values region. To change a line of dashes to equal signs (or vice versa), move the cursor to the row headings region, type the new character (= or –) and press Tab. To delete a line of dashes (or equal signs), move the cursor to the row headings region, press F3 (the Erase Entry key), and then press Tab.
Circular formulas involving row xxx (column xxx)	Two or more formulas refer to each other in a circular way. For example, the formula at row (or column) xxx might refer to another row or column that is controlled by a formula. That formula, in turn, refers to the heading at row (or column) xxx. If necessary, press F9 to display the formulas regions. Then, move the cursor to the row or column that has the number shown in the error message. (PLAN displays the row and column number of the cursor's position in the lower right corner of the message region.) Check each heading reference in the formula to see if the corresponding row or column is controlled by a formula that refers to row (or column) xxx. If not, check to see if it refers to another formula that refers to the heading at row (or column) xxx.
Create a worksheet first	Before you can get PFS data or print a worksheet, there must be a worksheet in the working copy. Press Esc to return to the Main Menu, then select Design/Edit to create a worksheet or Get to retrieve a worksheet. Before you can define a view, the worksheet must have both row and column headings.
Directory is full	You attempted to store a file on a disk, but the directory is full. If you have unneeded files on the disk, remove them: Press Esc to return to the Main Menu, then use the Remove function to delete the files. Or, save the files on another directory.

Disk has been changed	The PFS file disk has been removed from the disk drive. Replace the disk.
Disk is full	PLAN tried to write some information on a disk, but there was no room. If the disk has unneeded files, remove them: Press Esc to return to the Main Menu, then use the Remove function to delete the files. Or, remove the diskette and replace it with a diskette with room for the file. Do not exit from PLAN before saving the worksheet. You could lose both the changes made to the worksheet in the working copy and the worksheet file on disk.
Diskette is write-protected	You attempted to save or print to a diskette that is write-protected. Remove the write-protect tab from the diskette.
Drive is not ready	Either the disk drive door is open or there is no disk in the drive. Make sure that the drive contains a disk and that the drive door is closed.
Enter C on plan spec	The plan spec is missing a C (for column). Type C in the item that contains the data that you want PLAN to match with the column headings. Or, type CV in one or more items so that PLAN will match the item name (or names) with the column headings and use the values in that item (or items) for the worksheet values.
Enter one C or many CVs, but not both	You have included more than one C or both C and CV in the plan spec. Use C in one item only or use CV in one or more items.
Enter R on plan spec	The plan spec is missing an R (for row). Type R in the item that contains the data that you want PLAN to match with the row headings. Or, type RV in one or more items so that PLAN will match the item name (or names) with the row headings and use the values in that item (or items) for the worksheet values.

Enter one R or many RVs, but not both.	You have included more than one R or both R and RV in the plan spec. Use R in one item only or use RV in one or more items.
Enter V on plan spec	The plan spec is missing a V (for value). Type V in the item that will provide the values for the worksheet. Or, type CV or RV in one or more items so that PLAN will match the item name (or names) with the column or row headings and use the values in that item (or items) for the worksheet values.
Enter view name	Type a name for the view. The view name can be up to 15 characters long, including spaces.
Error in formula	The formula you just entered contains an error and PLAN cannot evaluate it. If possible, PLAN positions the cursor at the error. Common sources of error in formulas include: ■ Formula ends with an operator, such as: savings+. ■ Operators are adjacent to each other, such as: savings+ *interest or (savings+) or (*savings). ■ Operator is missing, such as the * in the following: (a+b)(c+d) or (a+b)c. Correct the formula.
File is maximum size	To get data from a PFS file, PLAN must store the retrieve spec in the file; however, the file has reached maximum size. You can use PFS:FILE to copy the design to a new file and transfer forms there. Or, if there are unneeded forms in the file, remove them.

File is not in DIF	The file you specified was not saved in DIF (Data Interchange Format). PLAN cannot read data from another program that is not saved in DIF. Make sure you typed the correct file name, including extension if it has one. (To list the files in the directory, enter just a drive name followed by a colon, such as B:, then press Enter.) If necessary, go back to the program and save the data in DIF. If the file name is correct, you may have inadvertently saved the worksheet as a different type of file (such as a SYLK file). Try another option on the Get Menu to retrieve the file.
File is not in SYLK format	The file you specified was not saved in SYLK (Symbolic Link) format. PLAN cannot read data from another program that is not in SYLK format. Make sure you typed the correct file name, including extension if it has one. (To list the files in the directory, enter just a drive name followed by a colon, such as B:, then press Enter.) If necessary, go back to the program and save the data in SYLK format. If the file name is correct, you may have inadvertently saved the worksheet as a different type of file (such as a DIF file). Try another option on the Get Menu to retrieve the file.
Formula cannot use its own heading	The formula you just entered includes the heading of the row or column containing the formula. A formula cannot refer to its own heading. Correct the formula.
Help is not available here	You have pressed F1 for Help, but there is no Help information available for this screen or function. Help is available only when you see F1-Help at the lower left corner of the screen.
Internal error	Your hard disk is probably malfunctioning. Contact your dealer for help.

Invalid date specification	The date specification in the plan spec is invalid. Enter a date specification containing a Y (for year), M (for month), or D (for day), and one or two dashes (–), one for each date field that you want PLAN to ignore.
Invalid selection. Please re-enter	You have entered a selection that is not on the menu. Enter a number from the menu that corresponds to the function you want to perform. For example, at the Main Menu enter a number between 1 and 6 or the letter E.
I/O ERROR	There is a physical problem with a disk drive, disk controller, diskette, or fixed disk. Some possible corrective actions are: ■ Disk drive door open. Close the door. ■ Diskette inserted incorrectly. Remove the diskette; then re-insert it properly. ■ Unformatted diskette. You must format the diskette using the DOS FORMAT command before using it with PLAN. ■ Malfunction. DO NOT USE THIS DISKETTE AGAIN. If the I/O error persists, take the disk drive to your computer dealer for testing.
Keyword is incomplete	PLAN cannot complete the calculation because the keyword is missing some information. For example, you may have omitted the interest rate for the keyword @NPV or @FV. Complete the keyword.
Maximum page width is 240	The maximum page width for a printed worksheet is 240 characters. Type a number that is 240 or less.

Not a PFS data file	The file you specified is not a PFS file. Be sure you have your PFS file diskette in the expected drive (drive B). Type the correct file name, including extension if it has one. If the diskette is not in drive B, include the drive or directory with the file name. (To list the files in the directory, enter just a drive name followed by a colon, such as B:, then press Enter.)
Not a PLAN Version A worksheet	You have tried to retrieve a worksheet that was not created by PLAN Version A. PLAN Version A cannot use a worksheet created by another version of PLAN.
Not a PLAN worksheet	You have tried to retrieve a file that was not created by PLAN and saved as a PLAN worksheet. Type the correct file name, including extension if it has one. (For a list of files in the directory, enter just a drive name followed by a colon, such as B:, then press Enter.) If the file name is correct, you may have inadvertently saved the worksheet as another type of file. Try another option on the Get Menu to retrieve the file. (Keep in mind that PLAN retrieves only headings and values from DIF and SYLK files.)
Not a valid device name	Enter a valid device name, such as PRN: or COM1:.

Not enough memory available	There is not enough memory available to perform the requested function. Make the worksheet smaller by deleting unnecessary rows or columns. Or, divide the worksheet into 2 smaller worksheets. First, save the current worksheet; then, create a new worksheet with only headings and transfer data to it using the Consolidate Worksheets option on the Get Menu. Finally, delete the rows and columns transferred to the new worksheet from the original worksheet. If you have a memory-resident program (such as a print spooler or RAM disk), remove it to free more memory for PLAN's use. (Save the worksheet on disk before you exit from PLAN.)
Not related to target cell	The cursor is positioned at a value or variable that is not related to the target value by a formula. Move the cursor to a value that is related to the target value. (To display the formulas regions, press F9.)
Nothing removed or copied yet	You must remove (Shift-F6) or copy (F5) a row or column before you can restore it. If you have already tried to remove or copy a row or column, it may have been unsuccessful because there was not enough memory available to perform the function.
Odd number of quotation marks	You have entered an odd number of quotation marks in the formula and PLAN cannot evaluate it. To correct the formula, add or remove quotation marks so that there is an even number of them.
Only 5 start values are allowed	You have entered more than 5 values after the keyword @Start. Delete start values until you have no more than 5.
Only one FOR or EXCEPT in a formula	A formula can contain one "for" or one "except," but not both. Retype the formula.

Operators not allowed in values	A value cannot contain the operators +, −, * or /. Retype the value without operators. If you want to perform a calculation on a value, use PLAN's Calculator (F4).
Page length is not long enough	The page length you specified is not long enough for PLAN to print the requested information. The page length must be long enough to include the column headings; at least one row of values; and, if you request them, column formulas, variables, and/or page heading. Enter a larger number for the Lines Per Page item.
Page width is not wide enough	The page width you specified is not wide enough for PLAN to print the requested information. The page width must be large enough to include the row headings; at least one column of values; and, if you request them, row formulas. Enter a larger number for the Page Width item.
Parentheses used incorrectly	The formula you just entered contains an incorrect use of parentheses. PLAN cannot evaluate it. Common errors in the use of parentheses include: ■ Unequal number of right and left parentheses, such as: ((a+b) ■ Incorrectly placed parentheses, such as: (a+b))+(c
PLAN already exists on "drive"	You have already installed PFS:PLAN on the drive. You are ready to use PLAN.
Printer is not ready	Check to see that your printer is properly connected, turned on, on-line and has paper.
Program to copy not found	The SETUP program cannot find the PLAN program files on the program diskette. See your dealer for help.
Program too big to fit in memory	There is not enough memory available for PLAN.

Quick Entry does not work here	Use the Quick Entry key (F2) only when the cursor is in the values or headings region.
Selected function does not work here	The function you selected (Copy, Insert, Remove or Restore) does not work at the current cursor position. To perform one of these functions on a row, first move the cursor into the values region, row headings region or a region to the left of the rows. To perform the function on a column, move the cursor into the values region, column headings region or a region above the columns. If you were trying to restore a column heading row, the cursor must be in the column headings region. To restore a variable, move the cursor to the variables region.
Target cannot solve for this value	The value cannot be used as a value to solve for because it is derived from a formula. Target can only solve for values typed into the worksheet. (To display the formulas regions, press F9.)
Target does not work on this value	The value is not derived from a formula and cannot be used as a target value. Move the cursor to a value that is derived from a formula. (To display the formulas regions, press F9.)
The program diskette could not be backed up	The backup procedure failed. Check to make sure you followed the procedure correctly. The blank diskette, which is to contain the back up copy, might be defective; or there might be a physical problem with the disk drive or disk controller.
The program must be on the same drive as the SETUP program	Type the name of the drive that contains the PLAN and SETUP program diskette.
This function does not work in a view	The function you selected (Copy, Insert, Remove, or Restore) does not work in a view. To perform one of these functions, you must return to the main worksheet (press F8).

This is last column	In a main worksheet, you have reached the maximum number of columns allowed (70). You cannot move the cursor beyond this column. Before you can add columns you must make the worksheet smaller. If it has unneeded columns, delete them. Or, divide the worksheet into 2 smaller worksheets. First, save the current worksheet; then, create a new worksheet with only headings and transfer data to it using the Consolidate Worksheets option on the Get Menu. Finally, delete the rows and columns transferred to the new worksheet from the original worksheet. In a view, the cursor is positioned at the last column in the view. You cannot move the cursor beyond this column.
This is last row	In a main worksheet, you have reached the maximum number of rows allowed (255). You cannot add rows to this worksheet nor move the cursor beyond this row. Before you can add more rows, you must make the worksheet smaller. If it has unneeded rows, delete them. Or, divide the worksheet into 2 smaller worksheets. First, save the current worksheet; then, create a new worksheet with only headings and transfer data to it using the Consolidate Worksheets option on the Get Menu. Finally, delete the rows and columns transferred to the new worksheet from the original worksheet. In a view, the cursor is positioned at the last row in the view. You cannot move the cursor beyond this row.
This is last variable	You have reached the maximum number of variables allowed (20) on a worksheet. Before you can add another variable, you must delete one.

This is maximum length	The item or region that you are creating or editing has reached its maximum length. PLAN will not allow you to enter or insert more characters for the item or region. If you are trying to type over the contents, make sure you are not in Insert mode (press the Ins key). If you are trying to edit a formula that is at, or close to, its maximum of 10 lines, you may not be able to insert more characters in the formula.
This program has already been installed five times.	The SETUP program allows you to install the program on the hard disk five times. However, if you made a backup copy of the program diskette, it can also be installed five times. Run the program again, this time using the backup copy. **Note:** If you are having problems with your hard disk that make it necessary to install PLAN repeatedly, contact your computer dealer.
To remove these headings, use F3	You cannot remove the last (bottom) row of column headings with the Remove Row/Col key. To remove the last row of column headings, use F3, the Erase Entry key.
Too many operators in formula	The formula contains too many operators (+ – * / ( )) for PLAN to evaluate it. Some possible corrective actions are: ■ Make the formula shorter by combining numbers; for example, perform simple calculations (such as 2+2+2) and enter the result (6) in the formula. ■ Eliminate some numbers from the formula by creating variables with their values; then, use the variables in the formula. ■ Divide the formula into 2 or more smaller formulas and enter each in the formulas region.
Too many parentheses	The formula you just entered contains parentheses that are nested more than 5 deep and PLAN cannot evaluate it. Correct the formula.

Unknown reference in formula (at row xxx) (at column xxx)	The formula contains a reference that currently is not a heading or variable. If you just typed in the formula, PLAN positions the cursor at the unknown reference. Make sure that you typed the formula correctly. Common sources of error include: ■ Keyword was not preceded by @. ■ Heading or variable name contains an operator (+ – * / ( )). Make sure that this type of heading or variable name is in quotation marks, such as "Profit-before-Tax". ■ Row, column, or variable does not yet exist. Create a row or column with the heading or a variable with that name. If you were editing the worksheet, your editing change created an unknown reference in a formula. PLAN displays the row or column number (xxx) of the formula containing the unknown reference. Before PLAN can evaluate the formula, you must create a row or column with the heading or a variable with that name; or you must remove the reference from the formula. To correct the formula, first display the formulas regions (press F9). Then, move the cursor to the row or column that has the number shown in the error message. (PLAN displays the row and column number of the cursor's position in the lower right corner of the message region.)
Use only numbers and operators	The Calculator uses only numbers and the operators +, –, *, /, (, and). You cannot include a heading or variable in a calculation. Retype the calculation.
View is not defined	Type a view name from the list of currently defined views displayed by PLAN.

Views need at least 1 row and column	When you define a view, you must include at least one row and one column in the view. You cannot exclude all rows or all columns. Type a + in the view region to include a row or column; or type a – to exclude a row or column.
Wrong version of PLAN	The version of PLAN on the diskette is not PLAN Version A. If you backed up your PLAN program diskette, try the backup copy.
You can define only 4 views	You have already defined four views, the maximum allowed for a worksheet. Type the name of a view from the list of currently defined views printed by PLAN. If you want to define a new view, you must remove an existing one.
You can only back up your PFS Software Series diskette once.	You have already backed up the PLAN program diskette once. You cannot back it up again.
Your screen is full	Your current action is causing your worksheet to exceed the 25-line maximum capacity of your screen. This happens if you attempt some combination of the following: ■ to create more than an 8-line row and 8-line column formula ■ to create 3 lines of column headings ■ to display the variables on the screen with the formulas Display the variables and formulas separately, reduce the number of rows in the columns headings, or shorten one or both formulas to allow your worksheet to fit on the screen.

b: the pfs setup program

This appendix explains how to use the PFS SETUP program to customize the PLAN program diskette. PLAN comes set up to work with an MS-DOS compatible computer with a monochrome or color monitor, and a parallel printer. If you have a serial printer or a black-and-white monitor connected to a Color/Graphics Adaptor, you need to use the SETUP program to modify PLAN to work properly with your computer system. The SETUP program can also install the PFS:PLAN program on a hard disk. Use SETUP after you have made a backup copy of PLAN.

To run the SETUP program, follow these steps:

1. If your computer is turned off, start DOS before beginning. Otherwise, exit from whatever program you have been using. You should see the A> prompt on the screen.

2. Insert the PFS:PLAN program diskette in drive A and type **SETUP** in response to the A> prompt. Press the Enter key to continue. The following screen appears:

```
A> SETUP

  PFS: Software Series SETUP Program
  Copr. 1984 Software Publishing Corp.

This is the SETUP utility for the
following PFS: programs:

  PFS:PLAN


SETUP modifies these programs to work
with different equipment, such as a
serial printer or a fixed disk.

Choose any option from the SETUP menu,
and answer the questions that appear.
If you make a mistake, press Escape to
return to the SETUP menu and try
again.

Press Enter to continue
```

Note the instruction to press Escape if you make a mistake while using the SETUP program. Press Enter as instructed and the SETUP menu appears:

```
SETUP Main menu

1. Select a printer
2. Turn color off or on
3. Install program on fixed disk
4. Exit to DOS

Selection:
```

Selecting a Printer

If you are using a serial printer with PLAN, or a parallel printer connected to LPT2: or LPT3:, choose the Select a Printer function. Type 1 following Selection and then press Enter. The following list of printers appears:

```
Select Printer

1. IBM Color Printer
2. IBM Graphics Printer
3. C.Itoh
4. Epson
5. Epson with Graftrax Plus
6. IDS
7. NEC
8. Okidata
9. Other

Selection:
```

Type the number that corresponds to your printer and press Enter. SETUP then asks you:

```
Selected printer connects to
(LPT1:,LPT2:,LPT3:,COM1:,COM2:):
```

Enter COM1: or COM2: for a serial printer, or one of the LPT choices (followed by a colon) for a parallel printer, then press Enter. SETUP stores the information on the PLAN program diskette, and you see the message

```
PFS:PLAN - OK
```

If you have entered LPT1:, LPT2:, or LPT3:, you return to the SETUP menu. If you have entered COM1: or COM2:, you will follow an additional step so that your serial printer can print properly. PLAN uses the information you supply to set up the serial port. The following questions appear one at a time.

```
Set Up Serial Card for Printer

Baud rate
(110,150,300,600,1200,2400,4800,9600)
:

Data bits (7 or 8):

Stop bits (1 or 2):

Parity (odd,even,none):

Use XON/XOFF (Y/N):
```

Answer each question appropriately for your printer, and press Enter after each answer. Your printer manual should give you this information, or you can call your dealer for help. Many serial printers work with the following values:

```
Baud rate
(110,150,300,600,1200,2400,4800,9600)
: 2400

Data bits (7 or 8): 8

Stop bits (1 or 2): 1
```

Parity (odd,even,none): odd

Use XON/XOFF (Y/N): N

After you answer the last question, SETUP displays the message, PFS:PLAN - OK and returns to the SETUP menu.

Turning Color Off or On

If you have a monochrome display, PLAN works properly in black and white. If you have a color monitor, the program displays properly in color. However, if you have a Color/Graphics Monitor Adaptor and do not have a color monitor, the program tries to display in color on your black-and-white monitor. The result is hard to read. In this situation, you can use SETUP to make the program display properly.

To change the display, select option 2 on the SETUP menu. The program asks you:

Choose Color or No color (C/N):

Type **N** and press Enter. PLAN stores the information on the program diskette, you see the PFS:PLAN - OK message, and then return to the SETUP program menu.

Installing the Program on a Fixed Disk

If you have an MS-DOS personal computer with a fixed disk, you can install PLAN on the fixed disk, eliminating the need to start the program from diskette each time you want to use it.

Note: You are only allowed to install the program five times using the SETUP program. If you are experiencing disk failures that require you to install the program to your fixed disk several times in a row, contact your dealer for help before using your limit of allowed installations.

To install PLAN on your fixed disk, choose option 3 of the SETUP menu. The program displays the following message:

> Please note the following before continuing:
>
> — Remove the write-protect tab from the program diskette.
>
> — You can only install the program on a drive that has a capacity of at least 2 megabytes.
>
> — You can use this install procedure only FIVE times.
>
> Drive name for the fixed disk:

Type the letter designating your fixed disk drive or the directory name for the part of the fixed disk where you want the program located, such as C: or C:\myfiles\.

Press Enter to continue. SETUP moves both the PLAN program and the SETUP program to the drive you specified. You see the OK message and then the SETUP menu again.

Exiting from the SETUP Program

After using any one or more of the SETUP options, select option 4 to leave the SETUP program. The DOS prompt A> reappears. You are ready to start PLAN.

Running SETUP from a Fixed Disk

If you have already installed PLAN on a fixed disk, you can run SETUP from that disk. Set the default drive to the fixed disk before starting SETUP. Any new information you enter is stored on the fixed disk.

c: using pfs:plan with different computers

PFS:PLAN has been tested with the following personal computer systems with 128K and one double-sided disk drive:

- IBM PC with DOS 1.1, 2.0 and 2.1
- IBM XT with DOS 2.0 and 2.1
- IBM PCjr (256K) with DOS 2.1
- Compaq with DOS 1.1 and 2.02
- Compaq Plus Portable with DOS 2.02
- Columbia Data Products MPC with DOS 1.25
- Corona with DOS 1.25
- Eagle with DOS 1.25
- Hyperion (256K) with DOS 1.25H
- Panasonic Sr. Partner with DOS 2.0

Corona PC

If you are using a parallel printer, you must enter PRN: instead of LPT1: for the Print To item of the Print Options Menu.

Eagle PC

To print to any printer, enter PRN: in the Print To item of the Print Options Menu. Use the DOS ASSIGN command to specify the port to which the printer is connected, and to set parameters such as baud rate needed for PLAN to print correctly to a serial card.

Note the following differences between the names of keys used in this manual and those used on the Eagle keyboard.

Key Name Used in Manual	Eagle Keyboard
Enter (↵)	RETURN
Esc	ESCAPE
←	BACKSPACE
←	ALT BACKSPACE
PgDn	SHIFT ↓
PgUp	SHIFT ↑
Del	DELETE
Ctrl	CONTROL
End	No equivalent

Hyperion

If you have a Hyperion computer system, you must prepare the program diskette with special attributes in order for PLAN to work properly. The following instructions tell you how to prepare the diskette.

To prepare the program diskette, place the DOS diskette in drive A and the program diskette in drive B. Load Hyperion DOS. When the C: prompt appears, follow these steps:

1. Set the default drive to drive A by typing

   A:

   Press the Rtn key.

2. Type MODE and press Rtn. Move the large cursor to Screen by pressing the right arrow key. Press Rtn.

3. Use the arrow keys to move the cursor to each line to the items shown below. Then press the down arrow key to move to the next line.

   Column width: 80
   Attribute interpretation: IBM
   IBM Screen Board Imitation: Monochrome
   Attribute translation: OFF
   Command line environment: IBM-KEY=OFF
   Screen wait state: WAIT=YES

   When you have selected these items, press Rtn. Position the cursor on Update and press Rtn again. When the message

   Save parameter settings to drive: DOS Save A: Save B:

   appears, move the cursor to Save B:. This writes the new attributes on the program diskette, so that whenever you load PLAN, the correct attributes are used.

To begin using PLAN, press Esc, move the program diskette to drive A and type **PLAN**, then press the Rtn key. When the Main Menu appears on the screen you can start using PLAN as described at the beginning of this manual. As you read this manual, note that two keys are labeled differently on the Hyperion keyboard:

Key Name Used In Manual	**Hyperion Keyboard**
Enter (↵)	Rtn
Backspace (←)	RubOut

a quick guide to pfs:plan

Cursor Movement Keys

↑	Moves the cursor up one line.
↓	Moves the cursor down one line.
→	Moves the cursor to the right one space.
←	Moves the cursor to the left one space.
Home	Moves the cursor to the upper left corner of the values region.
PgUp	Displays the previous screenful of data.
PgDn	Displays the next screenful of data.
↵	Moves the cursor to the next row of the same column.
End ↑	Moves to the top of the same column.
End ↓	Moves to the bottom of the same column.
End →	Moves to the right end of the same row.
End ←	Moves to the left end of the same row.
Tab	Moves to the beginning of the next column. (Ctrl → also works.)
Shift Tab	Moves to the beginning of the previous column. (Ctrl ← also works.)

Special Function Keys

↵	**Enter.** On a menu, tells PLAN to begin or continue a function.
F1	**Help.** Displays quick reference information appropriate to the function you are performing.
F2	**Quick Entry.** Enters headings automatically, sequencing months and whole numbers and duplicating other headings. Duplicates values in values region.
F3	**Erase Entry.** Erases complete entry (heading, formula, value, etc.) at cursor position.
F4	**Calculator.** Activates PLAN's four-function calculator.
F5	**Copy Row/Col.** Copies row or column at cursor position.
Shift F5	**Restore Row/Col.** Restores row or column most recently copied or removed.
F6	**Insert Row/Col.** Inserts blank row or column.
Shift F6	**Remove Row/Col.** Removes row or column at cursor position.
F7	**Recalculate.** Recalculates worksheet.
Shift F7	**Target.** Finds value needed to arrive at target value that you want to achieve.
F8	**View.** Displays regions used to define views.
Shift F8	**Format.** Displays regions used to change the format for rows and columns.
F9	**Formulas.** Displays regions used to enter and edit formulas for rows and columns (and Recalculate Automatically item).

Shift + F9	**Variables.** Displays region used to define variables for use in formulas.
F10	**Continue.** In the worksheet, tells PLAN to continue special function controlled by function keys.
Esc	**Escape.** Returns to the Main Menu.

Editing Keys

←	**Backspace.** Erases characters as the cursor moves to the left.
Ins	**Insert/Replace.** Switches between insert and replace modes.
Del	**Delete.** Deletes character at cursor position.
F3	**Erase Entry.** Erases complete entry (heading, formula, value, etc.) at cursor position.

Designing a Worksheet — the Basics

Steps

1. Type 1 in Selection on Main Menu.
2. Press Enter.
3. Type headings, values, and formulas into blank worksheet (see below).

Entering Headings (Ch. 3)

- Type headings in special regions below and to the right of word "Headings".
- Use any characters (up to 25).
- Group row headings by indenting group members under group name.
- Group column headings by stacking group names over group members.
  - — Insert up to 2 additional rows in column headings region for group headings.
  - — Begin group heading with several dashes and use enough dashes after heading to move into last column in group.

Entering Values
(Ch. 3)

- Values can include the digits 0 through 9, a decimal point, and a leading minus sign.
- PLAN stores up to 14 digits for each value entered, including decimal places.
- To display numbers with dollar signs, percent signs, and decimal places, use Format (Shift-F8).
- Enter comments in the values region without affecting the width of your columns.

Using Quick Entry
(Ch. 3)

- Press F2, type heading or value (or vice versa), and move cursor to adjoining row or column.
- Press F2 to cancel operation.
- In headings, Quick Entry automatically:
  — enters months in correct sequence
  — duplicates other text
  — increases whole numbers by one.
- In the values region, Quick Entry duplicates values.

Entering Formulas
(Ch. 3, 6)

- Press F9 to have formulas regions appear.
- Create formulas in the formulas regions above and to the left of the headings using headings, keywords, numbers, variables, and the mathematical operators +, −, *, /, and ( ).
- A formula usually uses an entire row or column in its calculation.
- Use "for" or "except" followed by row or column headings (or group headings) at the end of a formula to refer to only specified values in a row or column. Use a comma to separate multiple headings in the "for" or "except" phrase.
- To refer to a single value cell, type the row (or column) heading for the cell, the word "in", and then the column (or row) heading for the cell.
- Use a semi-colon (;) to separate multiple formulas (including keyword formulas).
- A single formula region can contain a maximum of 10 lines or 250 characters, including spaces.
- To recalculate worksheet manually, change Recalculate Automatically item on formula screen to N and use F7.
- Press F9 again to have formulas regions disappear.

Using Keywords
(Ch. 3, 6, and 7)

- Use keywords to replace or simplify formulas.
- @Total, @Avg, @Min, and @Max work with groups of rows or columns, rows or columns sharing the same heading, or the entire worksheet.
- @Cum and @Grow work with individual rows or columns.
- @Prev looks back in the worksheet for a previous value needed for a current calculation.
- @Start provides starting values for @Cum, @Grow, @Prev, and @FV.
- PLAN's 3 financial keywords are @NPV (Net Present Value), @FV (Future Value), and @Payment (Ch. 7).

Saving a Worksheet

Options
(Ch. 4)

- Save Worksheet saves working copy on disk as PLAN worksheet.
- You can also save a worksheet as a DIF or SYLK file.
- List files by typing only a drive or directory name in Directory or File Name and pressing Enter.

Retrieving a Worksheet

Options
(Ch. 4)

- Get Worksheet retrieves copy of PLAN worksheet from disk into working copy.
- Consolidate Worksheets combines two worksheets into one (see next section).
- Get PFS:FILE Data retrieves data from file created with PFS:FILE into PLAN worksheet (see next page).
- Retrieve worksheets saved as DIF or SYLK files, if:
  - — the first three rows are blank.
  - — the first column contains row headings.
  - — DIF files are saved by columns.
- List files by typing only a drive name in Directory or File Name and pressing Enter.

Consolidating Worksheets
(Ch. 4)

- PLAN combines values from worksheet on disk with values in worksheet in working copy when row and columns headings match exactly.
- When PLAN finds two rows or columns with the same heading, it looks for a group name.

Getting Data from a PFS File
(Ch. 9)

- Start with a worksheet in the working copy.
- Choose forms from which PLAN is to get data by using the same retrieve specifications used in PFS:FILE.
- Use the letters R (for row), C (for column), and V (for value) in the plan spec to tell PLAN how to organize the PFS file data into rows and columns.
- Combine V with R *or* C when the PFS file *item name* matches a row or column heading and the *data* in the item contains the values. (You can use *one* R or C, but multiple RVs and CVs.)
- When the item name and worksheet heading don't match, type the worksheet heading after the RV or CV in the plan spec.
- Use the letter Y (for year), M (for month), or D (for day) with dashes to tell PLAN how to read the dates in the PFS file.
- For special cases involving worksheet groups, see Chapter 9.

Printing a Worksheet

Steps
(Ch. 10)

1. Select Print function from Main Menu.
2. Fill in items on Print Options Menu, or use defaults.
3. Press Enter twice.

Options

- Print worksheet with or without formulas and variables.
- Use SETUP program (Appendix B) to modify PLAN to work with serial printer.
- Enter a directory and file name in Print To item to print worksheet to disk file.

Removing a File

Steps
(Ch. 4)

1. Select Remove function from Main Menu.
2. Change directory listing, if necessary, by typing new directory name and pressing Enter.
3. Type file name in Name of File to Remove.
4. Press Enter.

Using the Calculator

Steps
(Ch. 5)

1. Position the cursor where the result of the calculation should appear.
2. Press F4 to activate the calculator.
3. Type the calculation using numbers and the mathematical operators + , – , * , / , and ( ).
4. Press Enter to complete the calculation.

Notes

- The calculator works only with values typed into the worksheet, not with calculated values.
- Press F4 again to cancel the operation.

Using Variables

Steps
(Ch. 7)

1. Press Shift-F9 to have variables region appear.
2. Move cursor into variables region.
3. Type name for variable in a name section.
4. Press Enter.
5. Type value for variable.
6. Press Shift-F9 again to have variables region disappear.

Notes

- Use variable name in formula and PLAN uses variable value in formula calculation.
- Change variable value to see results of different options on worksheet.
- Create up to 20 variables per worksheet.

Changing the Format

Steps
(Ch. 8)

1. Press Shift-F8.
2. Type over Global Format default or type instructions into individual format regions using these symbols:
   , displays numbers with commas
   $ displays numbers with dollar signs
   % displays numbers with percent signs
   n rounds to n decimal places (n = any number 0 through 7)
3. Press Shift-F8.

Notes

- Individual format instructions override Global Format.
- Numbers displayed with % signs are divided by 100 when used in formula calculations.

Changing the Minimum Column Width

Steps
(Ch. 8)

1. Press Shift-F8.
2. Type over Minimum Column Width default using any number from 3 to 25.
3. Press Shift-F8.

Notes

- Individual column width is determined by Minimum Column Width setting or widest entry in column.

Inserting Rows and Columns

Steps—Rows
(Ch. 5)

1. Move cursor into row that you want to be directly below new row.
2. Press F6.
3. Type R.

Steps—Columns

1. Move cursor into column that you want to be directly to the right of new column.
2. Press F6.
3. Type C.

Removing Rows and Columns

Steps
(Ch. 5)

1. Move cursor into row or column you want to remove.
2. Press Shift-F6.
3. Type R to remove row, C to remove column.

Notes

- If you remove row or column mentioned in a formula, be sure to adjust the formula.
- Use Shift-F5 to restore most-recently removed row or column to worksheet.

Moving Rows and Columns

Steps
(Ch. 5)

1. Use Shift-F6 to remove row or column.
2. Move cursor to position where you want to restore row or column.
3. Press Shift-F5.

Copying Rows and Columns

Steps
(Ch. 5)

1. Move cursor into row or column you want to copy.
2. Press F5.
3. Move cursor to position where you want copy to appear.
4. Press Shift-F5.

Using the Target Function

Steps
(Ch. 8)

1. Place cursor where you want to enter target value.
2. Press Shift-F7 and follow directions in message region.

Notes

- With Target you can find the value that lets you achieve a target value.
- Use Target only with related values.
- Press any key to cancel function when targeting is in process; at other times, press Shift-F7 again.

Clearing the Working Copy

Options
(Ch. 5)

- Clear Working Copy erases all the contents of the working copy, preparing it for a new worksheet.
- Clear Values Only erases only the values from the working copy. Existing headings, formulas and variables remain.

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+ (see plus sign)
– (see minus sign)
* (see multiply sign)
/ (see divide sign)
= (see equals sign)